Telephone No 29835

Latest Cottage Industry

2778

By

JAGAN NATH SUD, B.A. (ECON.)

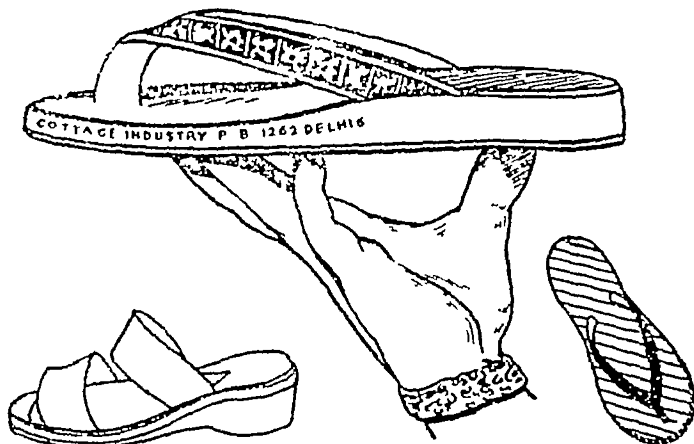
3rd Revised & Enlarged Edition

A. Dewan Chand Anand & Son,
(K-8) Near Red Fort, Behind Recruiting Office,
Delhi-6.

Price · Rupees Eight only *Postage Re. one only*

Chappal Industry

The Scientists are advancing with a rapid speed. They are trying to reach the Moon and other planets like Saturn,



Neptune, Pluto, Uranus, Venus etc The Saturn is a planet, the furthest off of the 7 anciently known, with 10 moons and broad flat ring, credited in astrology with producing cold sluggish gloomy temperament in those born under its influence They want to make use of the materials producing in the moon world New dwelling places and buildings would be erected there There is no end of science You can think more and more about it. To take advantage of a thing, you should think on every part of it minutely and systematically Your endeavour to discover facts by scientific study of a subject or course of critical investigation may be fruitful in the long run This is science On the basis of this fact, the scientists are advancing forward It is the demand of the coming generations that every thing may be put forward in a new design and fashion The old traditions, rites and mode of living and dressing are changing by and by.

The scientists are also searching such goods as may be cheap and durable according to the demand of the time Some time ago, foamy chappals were invented in Japan and Hongkong This chappal is comfortable to walk and elastic

like sponge At the time of walking it is pressed and expanded The feet with chappals on feel much comfort It is beautiful to look at and cheap in price Its demand in India is so intense that the factories manufacturing chappals cannot meet the growing demand The gain in this industry is very huge The people who are manufacturing chappals are earning a lot of money The machinery, raw material, rubber chemicals and labour etc, that are needed to start this industry are given in detail in the following paras. This industry can be started in every corner of India There is a great demand of it everywhere The raw material can be had everywhere and it can be transported from one place to another very easily If there is no electric current under your possession, you can use oil engine or crude oil engine to run this factory.

Caoutchouc or india Rubber —This is the raw form of Rubber It is also called unvulcanized rubber The most essential part of the chappal is the raw rubber As a matter of fact, you can have raw rubber in every city But every owner of a factory should get a licence from the Government for getting the rubber according to the rules of the Government Rubber is produced abundantly in South India One Office of the Government is in *Kottayam* Kottayam is situated in South India, i e, it is a city of Madras presidency There is an Institute of Government The name of this institution is India Rubber Company. The factory owners who are in need of rubber send their application to this Institute In reply this Institute sends to the man concerning some essential papers and forms The full name and detail of the factory is to be filled in these forms It should also be mentioned that how much rubber would be consumed When all these forms reach their office duly filled in, then they charge Rs. 10 as licence fee and issue a licence on the name of the factory concerned This point should be borne in mind that at the time of writing the quantity of rubber, please write more quantity of rubber than that actually required by you. It may be that there is a huge demand of rubber and the Government is forced to take it under control, or by some other unforeseen circumstances, you are unable to get the fresh quantity of rubber, then the quantity of Rubber in store would stand in good stead

Electric Connection —To run this factory 10 horse power of electric connection would be required It is only in that case when you are taking work from one mixing Mill If your work is distributed and one mixing mill machine would not be sufficient to meet your demand, in that case, you would have to take 20 horse power electric connection. If you are required to run your factory at such a place where there is no electricity, then you can start your factory with the aid of an oil Engine, or Crude oil Engine.

Rubber and its use —The method of making the rubber chappal is this that first of all, we take the raw rubber Then the Rubber along with other chemicals and colour is put into the rubber mixing Mill This machine prepares its compound Out of this compound, the soles are cut according to the size required This compound is in the shape of thick rubber sheets. If you want to put zinc oxide on the surface of the sole, you can put one layer of white rubber and this sole is placed in the die of the chappal And this die is placed in the press and tightened Steam comes into it from the boiler and within 20 minutes, the sole of the chappal is prepared In this way, soles can be prepared by repeating the same process By cutting and putting the rubber pieces into the die the straps are prepared This die is put into the press and then tightened The Steam comes from the boiler into this press and within about 20 minutes the sole of the chappal is prepared By repeating this process, the soles are prepared and the straps of the soles are also fixed into the dies after cutting them They are also cooked into the press by the same method In this way these straps are prepared

The raw rubber is a kind of rubber clog It seems just like a bundle of clothes weighing one or two maunds It is covered with a piece of gunny bag This unvulcanized rubber is just like that bundle of cloth Take a clog of rubber and open it Make ½ inch thick layers of it and cut its separate sheets Put colour and chemicals etc in it and place it into the rubber mixing mill Make a compound of it and take it out of the machine.

Chemicals —Two kinds of chemicals are used in the rubber One are those that are mixed with the rubber in order to cheapen the rate of the rubber Other are those which

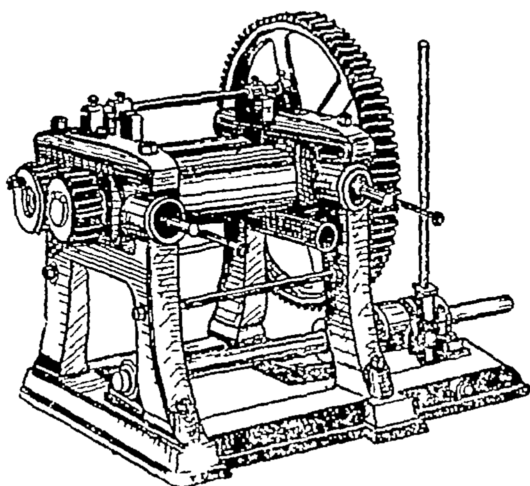
give softness, elasticity, and fast colour to the rubber. The names of those chemicals are the following —

(1) (1) Chalk Powder of Porbandar (2) Khariya mitti or China Clay (3) Soap stone (4) Spendil oil, (5) Paraffin Wax. (6) Citric acid

(ii) These chemicals are called, 'Acceleration in English The names of these things are—

(1) T M T (2) Zinc Oxide, (3) M. B T (4) B T. S (5) Sulphur (6) Titanium Titanium gives whiteness to the rubber This is a dark-grey metallic element (7) Red Oxide (8) Red colour (9) Black colour (10) Green colour and yellow colour. This colour depends upon your own will The colour you want to give to the rubber may be mixed with it

Rubber Mixing Mill —The work of this machine is to prepare rubber compound The bundle of rubber is unfastened and rubber sheets are separated The chemicals are wrapped into the rubber sheets. These sheets are put into the rollers of the machine By the revolution of these rollers, the rubber goes down in a pressed form There is a plate below the rollers The rubber falls down into this plate into a thick sheet form It is again put into the rollers And the rollers are somewhat tightened Again a thin



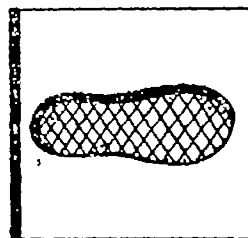
rubber sheet goes down In this way, by repeating the process for five or seven minutes, the compound of rubber is prepared within 5 or 10 minutes. Now cut out of these rubber sheets such sizes of the soles of chappals as are required by you or your customers This machine can be had in three sizes which are as follows .—

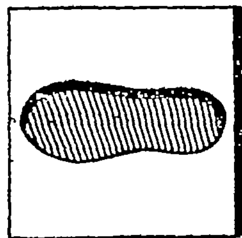
Price of Size 6"×16"=Rs 1900
,, ,, ,, 7"×18"=Rs 3500
,, ,, ,, 8"×18"=Rs 4200

All the machines regarding chappal Industry can be had from *Cottage Industry, Post Box No 1262, (K-8) New Market, Anguri Bagh, Delhi-6*

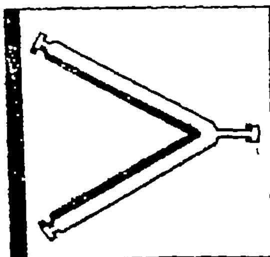
Which chemical and in which quantity, it should be added. It depends upon the quality of the chappals In Superior quality of chappals the pure form of rubber should be added in a greater quantity. The quantity of chalk and khariya mitti should be less. In the inferior chappals, these things are added in greater quantities than the superior ones

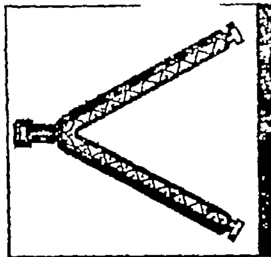
Dies for making soles of Chappal The dies of chappals are of many kinds They are of small size as well as of big size They bear on them separate numbers. The Dies of these are prepared according to their numbers



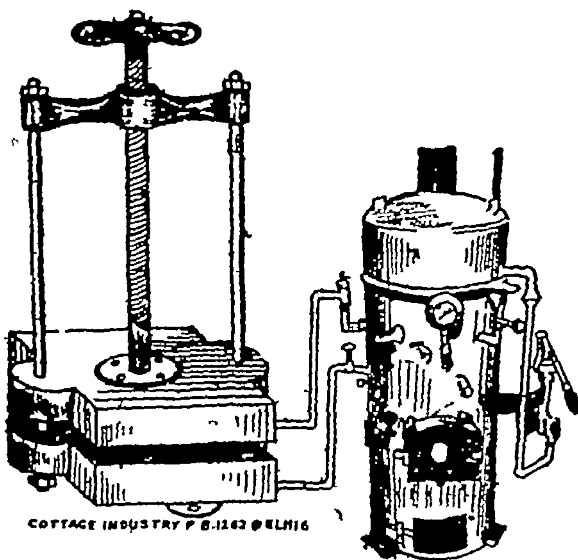


The price of the big size sole die is Rs 150 and the price of the small size sole die is Rs. 140 The Rubber soles that are cut are placed in these dies for giving them durability.





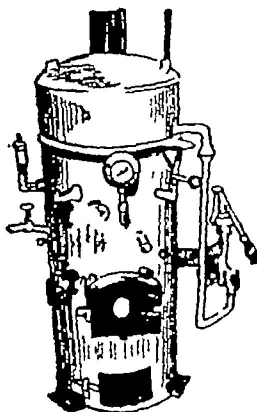
Vulcanizing Press —The dies in which you have placed the rubber soles are closed and placed into the Vulcanizing Press. This press is closed from above. The steam comes into this press from the steam boiler and the heat is transmitted to the rubber soles through these dies and this makes it durable within twenty minutes



This press is of two kinds of sizes Price of $1\frac{1}{2}' \times 1\frac{1}{2}''=$ Rs. 350

Price of $2' \times 2''=$ Rs. 550

Baby Boiler This boiler makes the steam and transmits it to the vulcanizing press. Its steam produces heat in the press. This heat cooks the rubber. Within 20 minutes the sole is prepared. There are seventeen tubes in this boiler Its hydraulic test is lb 300 Its water capacity is $3\frac{3}{4}$ gallon. There is a feed pump with it Its working pressure is lb. 100 Its price is Rs 800



Chemist :—For running this industry, the presence of a chemist is very essential Only the chemist knows full well how to mix the chemicals, how the quality of rubber is prepared superior or inferior, how are the colours mixed in the rubber to get the proper required shape There is no exaggeration in saying that the chemist is the soul of this industry The factory from where you buy the machinery of this industry will give you a chemist also The salary of the chemist is ordinary. It is not much If you have yourself some knowledge about the rubber you can yourself undertake this work

Mistri —As the chemist has his importance on his own place, so is the importance of the *mistri* on his own place When the mistri will fit the rubber mixing mill and will take the work from it properly. To fix the press at the proper place, to fix the boiler and connect the wire of the press with it, to prepare the steam into the boiler, for all these works there should be an efficient mistri Your Industry will progress by leaps and bounds if you have employed an experienced hand mistri

Labour :—This industry requires 10 or 12 labourers These persons should also be experienced hand Because all the work is done by these labourers If these labourers are intelligent, the goods manufactured would be neat and clean The production would be greater The material will not be wasted. The company would earn a huge profit

Now-a-days there are such persons available in the market who does this work as a technician and they think it more suitable to work in such factories because of unemployment

How much space is required for this Industry :— In the beginning you can perform this work in a short space or small place Because you have to fix an electric motor to run the rubber mixing mill. It can be fixed in a small place. A spacious place is required for installing the press and boiler so that the work may be performed very easily There should be a godown for storing the raw material because chemicals are not put into the open place. There should be a godown for storing the manufactured goods, keeping in view all the points given above along with the expansion of the work in future, you should arrange for a place In the long run, a factory is a factory. It requires a place as big as can accommodate a factory

How much capital is required for this Industry — Quantity of the capital depends upon the capacity of the factory In the beginning, you can start this work with 10 thousand rupees But this work is very great Its scope is also vast You can expand this work as much as you can You can invest as much money as you can The following goods are essential for this work (1) Raw rubber (2) Chemicals, (3) Rubber mixing mill, (4) Vulcanizing press (5) Baby boiler, (6) Dies for the sole of the chappal. (7) Electric Motor (8) Electric Connection, (9) Chemist, (10) Mistri, (11) Labour (12) godown for storing the raw material (13) Store for the manufactured goods, (14) Place for the factory (15) Agents etc for selling the goods,

CABLE WIRE INDUSTRY

In the modern times, the place of Electricity is the top-ranking There is no such industry that can be started without the help of electricity The percentage of the capacity of business increases with the introduction of Eectricity As far as the production increases the country would be self-dependent in fulfilling its needs. We can increase the production with the aid of big machinery and these machines can be run with the aid of electricity Our countrymen are doing then best to increase the production of electricity as much as lies in their power The electricity plays an important part in the development of our country. The fact lies on the surface, before us, open The increase of electricity and the increase of other materials will go side by side and cable wires are one of the most important materials There are small wires that run on all sides in our body They give the message of the heart to the brain Such wires are called nerves, tissues, ligaments, veins etc. Our life blood runs through these veins In this way, without the help of cable wires, we can neither take work from electricity nor we can transmit electricity from one place to another.

Therefore, if we want to take the work from electricity on a large scale, we should give first priority to Cable Wire Industry. We should try our best to increase this industry.

Our aim is to spread a net-work of power-houses so that the light of electricity may illuminate even our small villages and towns To take advantage from electricity, the production of cable wire industry is essential Every Indian can take advantage from this beneficial thing The Indian can extend their business and production by the aid of electricity. India is a vast country that requires lakhs of power houses.

Scope for this Industry—It is about twelve years past when our country was freed from the yolk of slavery. Our country progressed by leaps and bounds in this short space of time. As you know that our National Father proclaimed that the

real India lives in villages. The uplift of villages is the uplift of India as a whole If the villagers will live peacefully and happily, it will be a sign of happiness for the whole India. Our leaders are doing their best to provide electricity to every village Now estimate for a while that how much cable wire will be needed for providing electricity to the whole country.

It is very difficult to estimate it The consumption of cable wire is so huge that it cannot be estimated If you say that crores of tons of wire would be manufactured, it cannot be held true To supply electricity to the whole of India it will take about fifty years The present cable wire industry cannot meet the demand which will be created between these fifty years The demand side will outstrip the supply side Because in India there are about one hundred cable wire industries that are working day and night. But still the demand cannot be fully met Therefore we are forced to import cable wire from foreign countries In addition to it, our neighbours who are under-developed, their demand of cable wire comes to India and we have to meet it In short, there is a vast scope in India for cable wire industry As much cable wire is manufactured, is sold to wholesalers in an instant They sell it on huge profit. The people have set up factories of cable wire They think over increasing the business still on a large scale They increase the number of machines in their factories

Site for the Factory —Because this work can be performed on a huge scale It requires 100 or 200 sq yards of ground out of the city so that a building may be erected for starting a factory. The construction of the building is like an uncovered walled compound in which ten or twelve machines may be fitted and operated There should be a suitable place for fitting the electric motor There should also be a suitable place for a vulcanizing pan. There is a great need for storing the goods manufactured. There should be a separate room for keeping rubber chemicals and insulating goods At least 25 or 30 technicians will work in the factory. The building of the factory should be such that the workers may move freely in the

premises of the factory You should pay a visit to some cable wire factory before erecting the building for cable wire industry Your cable wire industry building should be according to the new surveyed for this purpose If you are unable to visit some renowned cable wire industry, you should consult some architect engineer for the construction of the building The water also plays an important part in this industry Take special care for the supply of water also. The building should be such that suits the climate of the place Because the rubber that is used for this work can be effected by the heat and coolness The full detail about it can be acquired from a chemist who deals in rubber Also keep in view the Act of Industry You should take note of the facilities of the workers

How Much Capital is needed for this Industry—No doubt, you are setting up a big factory You will have to invest money (1) on buying the land, (2) on erecting a building on it, (3) on buying machinery (4) on getting electric connection, (5) on buying copper wire which will be kept in stock, (6) on buying the rubber, (7) on buying chemicals and other powders, (8) on giving salaries and wages to labour and staff

All the above things will require an investment of Rs 25,000 to Rs 40000 If you can afford to invest so much money independently, then you can set up your independent business Otherwise you should establish a co operative society The members of this co-operative society should not be more than 10 or 20 members Each member should contribute Rs 2,000 or Rs 5000 The money thus contributed should be invested in starting the factory This work is very profitable Every member will be satisfied by getting the profit and the interest of the money invested It may be a prophesy that the members that buy the shares of the co-operative society—after one or two years each member will desire to start a separate society This is the charm and incentive of profitable business You can take the money from some Industrial Bank on some reasonable rate of interest The Government gives loan to Co-operative Societies on a reasonable rate of interest. Hundreds of co-operative soc e-

ties are running by the aid of the Government. The Government is pleased to give aid to such industries The Government wishes that such industries may be started in our country When the factory comes into operation, the question of money is solved of its own accord

Licence for the supply of Rubber.—Raw Material Rubber is used for cable wire industry Rubber is got from the proper authority The office of the Rubber-licence giving authority is at Kottayam S India There is an institution whose name is India Rubber Company You have to post a letter to this authority In reply to your letter they will demand a sum of Rs 10 as licence fee to be sent by Money Order. After sending the sum of Rs 10, you will receive some letters in which you are asked about full detail of your factory. The authority have the right to ask you what quantity of rubber you can consume within a week or a month All the papers you have to send back duly filled in They will satisfy themselves by the aid of these papers After that, they will send you the licence You can show this licence to the rubber dealers and can get the quantity of rubber as is mentioned in the licence But you should bear in mind that when you write the quantity of rubber, you should write somewhat more quantity than your requirement as the requirement of this material is greater There is every likelihood of more sale than your estimated quantity There is no difficulty in this work you can get the licence and other facilities by correspondence It is essential that this work should be performed first of all so that the workers may not sit idle and the machine may not remain idle

Electric connection required for this industry.—20 horse power electric connection is required for this factory The estimate of the investment of even a small factory is to be made like this —1 Rubber Mixing Mill—That can be operated by at least 7½ horse power to 10 horse power motor 2½ horse power motor is required for putting into operation two extruder machines For operating Taping Machine, Insulating Machine, Measuring Machine, Twisting Machine, Tube-Making Machine, Coil-making Machine, Grinding Machine etc., eight

or ten horse power is required If the electric connection is five horse power more than the required horse power there is no harm in it. There is no doubt about it that this work will be expanded and extended and more machines have to be installed for it Therefore it is essential that the permission of 5 or 7 horse power extra may be got

It is possible that you want to set up your factory on such a place where there is no electricity available, you should not leave your idea of running a factory because there are other sources that can be substituted for the electricity. You can run and operate your factory by the aid of an engine to be operated by a 20 horse power oil Engine Crude Engine or Diezel Engine These engines can be properly operated by the help of a technically expert mistri The engine dealer companies make arrangement for such mistries of their own accord

Labourer and chemist —You have to select the workers for running a cable wire industry very carefully If the workers are technical hands and skilled workers and have full knowledge about this work, your factory will progress by leaps and bounds If you are a little slack in the selection of workers for your factory, then you should think that the walls of your factory are being built of sand and there is no cement and stones at all It may be that the possibilities may turn into impossilities Therefore you should be more cautious in the selection of workers

1 **Chemist** This is the technician who has full knowledge of preparing the rubber compound The raw rubber can be had in the bundle of one hundred-weight or two hundredweights How it can be put into the machine, what material is used for keeping the rubber hot or cold—what materials are used for making the rubber durable—how the rubber is made coloured—how the whiteness is given to the rubber—how the sheets are prepared in the rubber mixing machine—how the rubber is coated on the wire by the aid of extruder machine—if the machines become hot how they are kept safe—how the rubber is melted in the extruder machine—the rubber coated on the wire strands should be bright, elastic, and strong—all these things can be told and instructed by

a skilled and able chemist. If you have not selected a chemist very carefully consequently you will have a loss in stead of a gain, no doubt Therefore you should keep such a chemist in your factory who has at least five years' experience.

2. **Mistri.** The mistri is also the soul of the cable wire factory. The selection of it is also a very careful one. You will have to set up about 15 or 20 machines in your factory. You will have to set a foundation for every machine. In the foundation of every machine, you will have to set 3" or 4" long screwed bars in the place where the foundation is set. The foundation should be in level and machines are to be fitted here Shaft, pulleys and belts should be set at the proper place The adjustment of the machines should be well-planned If the machines or their adjustment is out of order it may be set properly. All these works can be performed by a technical and experienced mistri Therefore you should select a mistri very carefully. If you appoint a mistri of 5 or ten years' experience that is very useful for you. The machine dealing companies make arrangement for a mistri.

The definition of a labourer is also very wonderful. A skilled labourer who does every work very carefully and intelligently is called a labourer The labourer who does the work at your bidding and cannot use his own intelligence is also called a labourer. In the characteristics of both these labourers, there is a world of difference. If you engage the second category labourer on rubber mixing mill or extruder machine, he will burn the rubber to ashes and you will get a great harm through his inefficiency Therefore the 1st category worker is beneficial for your industry Therefore you should select the labourer very carefully.

Raw Material—You will have to use many kinds of Raw Material, such as No. 1 Copper wire of size 1/18, 3/20, 3/22, 7/20 and 7/22 etc. This wire can be had in every big city, because there are many big factories that manufacture such wires It will be beneficial for you that you make direct contact with the wire manufacturing factories. The first advantage is this that you would be able to get as much wire as you require at any time you like. The second advantage is that the profit that the wire-selling shopkeeper gets, will

remain in your pocket. You will have to keep a great stock of this wire in your own possession The wire is the main thing for this industry The price of the wire remains fluctuating You will have to increase or decrease the rate of your goods Call the quotation of two or three big industries of renowned fame and compare the quality of goods and their rates You should have the wire from that factory who sells its product cheaper than the other factories. The durability and strength of the product are the specialty and reputation of the factory.

Raw Rubber—You can buy this rubber from the firms who deal in rubber This rubber can be had from them in bundles of one hundred-weight or two hundred-weights This rubber is wrapped in round or flat rolls one surface upon the other surface

The rolls of rubber are just like the rolls of cloth. When we use this rubber, the sheets of rubber are unrolled and put into machines in the form of small pieces There is variation in prices of this rubber from city to city The prices should follow the quality of rubber If you try, you can get a little commission from the sellers You will have to keep a stock of rubber also in a huge quantity The colour of the rubber is a wonderful and mixed one, we cannot keep its special name When we put colour in it, then it assumes some colourful shape There should be a special place for it which should not be either too cold or too hot The rate of it is Rs 1½ per pound.

Chemicals No 1—Four things come under the category of these chemicals The special function of these chemicals is to make flexible and soft wire on cheaper rates By mixing these chemicals the wire catches less quantity of rubber and in their stead these chemicals take the place of rubber The names of these chemicals are as under —

(1) Chalk powder of Porbandar. (2) *Kharya mitti* or china clay (3) Soap stone (4) Spendil oil (5) Paraffin wax (6) citric acid. The above-mentioned three things—chalk powder of Porbandar, china clay and soap stone can be had at the rate of annas 2 per pound and we can mix it after every pound of

rubber 2 pounds to 5 pounds of these three chemicals The rate of rubber becomes 5 annas per pound instead of Rs 1½ per pound Now you have come to know that this powder is mixed in order to cheapen the rate of the rubber Now spendil oil, paraffin wax and citric acid are mixed with the raw rubber When the rubber is mixed with the powders, they give a kind of odour When spendil oil, paraffin wax and citric acid are added, they suppress the odour and create flexibility into the rubber The critic acid kills the bad odour of the rubber.

Chemical No 2 :—These chemicals are such as produce flexibility into the fine wire strands How hot should be the chemical and what should be the temperature of the wire strand—the worms should not eat into the wire—The quality should be fine—All these functions are performed by chemical No 2 These are called "Acceleration" in English The names of these things are —

(1) T M T, (2) zinc oxide, (3) M B T, (4) B T S, (5) Sulphur, (6) Titanium (it gives whiteness to the wire) (7) Red oxide, (8) Red colour, (9) black colour, (10) Green colour and yellow colour These colours that are given above, depend upon your own choice and the choice of the market. If you mix the powders in great quantity, the colour of the rubber of cable wire would be dim Therefore the colours should be fast and bright

Machinery —You will have to set up the following machines for the Cable wire industry —

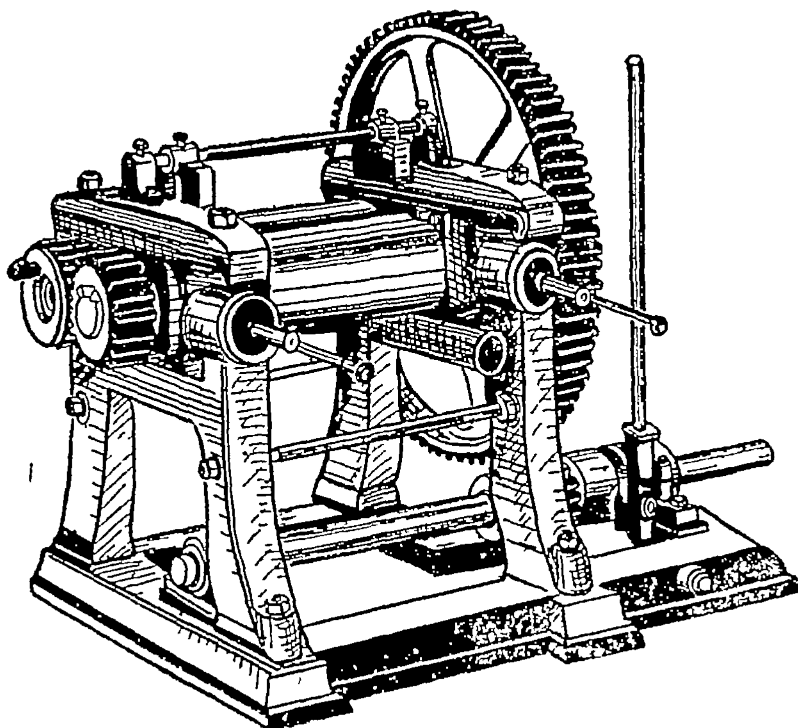
(1) Electric Motor.
(2) Rubber mixing Mill
(3) Extruder Machine.
(4) Rubber Tube-making Machine.
(5) Taping and insulating Machine.
(6) Measuring Machine.
(7) Vulcanizing Pan.
(8) Firing Stove

Now we shall tell you the working of every machine. You should try to understand the function of each machine very closely.

1. **Electric Motor** —Your factory requires a twenty horse power electric motor The motor should be universal A C. and D C Motor should be fixed in one corner of the factory It should be fenced with iron bars so that the unskilled workers of the factory may not touch it otherwise they will have to sacrifice their lives for nothing A caution board should be hung 3-4 feet high over the electric motor If it is 440 volts, you should write the quantity of volts also Where there is no electricity you can use Oil Engine, Crude Oil Engine, or Desel Engine

2 **Shafting, Belts and Pulleys**—The requirement of these things can be estimated by a mistri who is fitting the machinery of the factory

3 **Rubber Mixing Mill**—The function of this machine is



to prepare the rubber sheets by mixing raw rubber powder and acceleration etc Where this machine is fitted, a pipe is fitted on a small distance from it. The connections of that pipe are fitted into the roller of this machine so that when the rollers become hot by the revolution of the machine and the compound being prepared, begins to emit smoke, then open the connection of pipe with the aid of a screw-driver and pass water through the rollers so that its extra heat may be exhausted and it may be able to work at a normal stage How the rubber sheet is prepared ?—There is a clutch to make narrow or widen the distance between the two rollers of the rubber mixing mill With the aid of this clutch, we adjust the rollers according to our own choice First of all, select the sheet out of the bundle that is lying before Now put chalk powder of Porbandar, china clay, soap stone, paraffin wax and citric acid on the sheets and wrap these rubber sheets into the rollers of the machine Now adjust the rollers of the machine in such a way so that it may pass slowly in the shape of sheets Please put a plate below the rollers. These rubber sheets fall down in the plate. Take these rubber sheets out of the plates and again pass them through the rollers and narrow a little the distance between the rollers Please repeat the same process ten times and make narrower the distance between the roller at every repetition Now put acceleration, *i e*, zinc oxide , T M T. M B T , M.B T S Sulphur, Novex D, Titanium, Red oxide and colours Now wrap these things into the rubber just into a cylindrical shape and pass it through the rollers of the machine as you have already done This sheet would be ready by repeating the process 10 or twelve times Now put these sheets apart One process will take twenty or twenty five minutes You should repeat the process again and again for fresh supply of sheet compounded with chalk powder and other things, as already mentioned This machine can be had in three sizes and their detail is like this —

Two steel rollers (Relay axle steel arrangement for water circulation, bushes with gun metal, heavy stand, bed plate

shafting with two ball bearings, three small gears of steel and one big gear of cast iron but milling cut without matter.

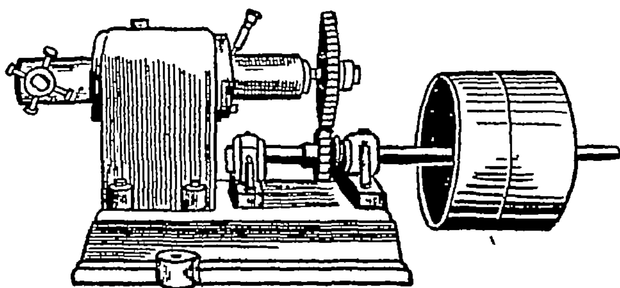
These machines are of three kinds and diameter and length of the rollers are different and their prices vary according to diameter and length and size of the machine

The price of size 6×16″ is Rs. 1900. 7×18″ „ Rs 3500

8×18″ Rs 4200

The cycle (diameter) of the pulley of the rubber mixing mill should be 25 to 30. But if the cycles would be more or less than the required one, the machine will not work.

Extruder Machine—The main function of this machine is to coat the copper wire with rubber The coat of rubber should be so thick as you want You have prepared the rubber sheets into pieces of $\frac{1}{6}$ inch or $\frac{1}{2}$ inch width lengthwise Now pass the copper wire through the nozzle of the extruder machine Put these rubber pieces



into the feeder of the extruder machine. Now heat the feeder with the firing stove so much that the rubber pieces may be melted into the shape of rubber liquid Pull out the wire that is passing through the nozzle of the machine. The wire that will come out of the nozzle would be coated by the rubber There is a water tank adjoining with the machine This water tank has two holes one on each side Put a piece of wire from one hole and take it out through the other hole and fasten it on reel– so that all the wire may be wrapped on the reel. In the same way, put the rubber pieces again and again into the machine and heat with the firing stove and pull the

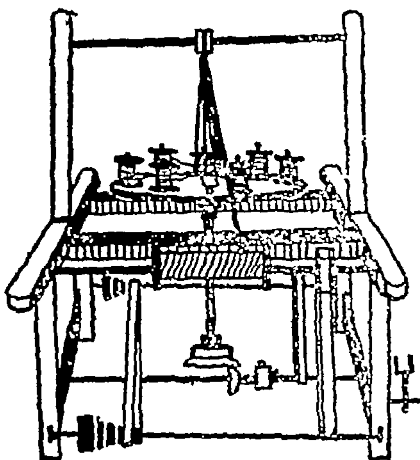
wire out of it and pass through the water tank so that hot wires may not stick to each other How much rubber should be coated on the wire can be determined by the aid of dies that are attached with the machine If you want to coat the wire with the $\frac{1}{20}$ inch thick rubber, you should fit the die of $\frac{1}{20}$ inch. If required, you can fit the die of more or less size

The cycles of this pulley should be from 60 to 65 If they will be kept more or less, the machine will not be operated properly The construction of this machine is as follows

Complete with head, one die and mould of 1/18 wire, steel worm-gear $1\frac{1}{2}''$ fitted with bed plate, arrangement for water circulation, with countershaft fitted with tight and loose pulleys The price of this machine is about Rs 800 The price of the worm-gear of $1\frac{3}{4}''$ is about Rs 1,000 and the price of the worm-gear of 2″ is about Rs 1100

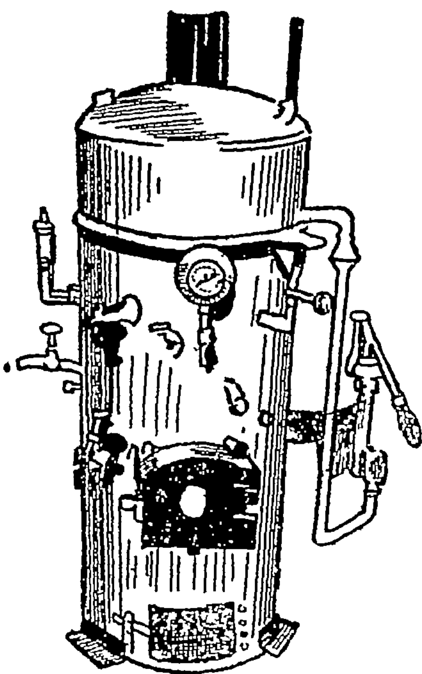
How much material is manufactured with the aid of these two machines in eight hours ?—In eight hours, one rubber mixing machine and two extruder machines can manufacture from 80 to 100 reels of wire. The measure of each reel is 100 yards

Twisting Machine —The wire that is coated with rubber is made of three or seven fine wire strands These three or seven wires are twisted into one wire with the aid of the Twisting machine. First we take the wire strands of copper Three or seven wire strands are twisted into one wire by wrapping them on separate reels. Then it works into the twisting machine. With the aid of this



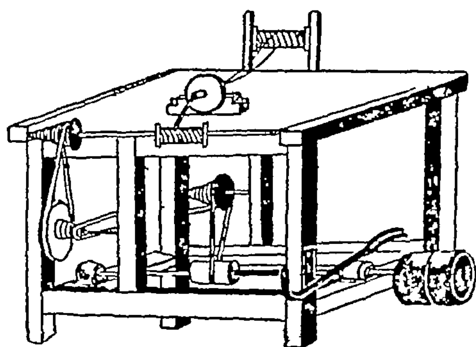
machine, you can twist 1/18, 3/20, 3/22, 7/20, 7/22 wire strands into one wire This machine can be fitted with the iron plates consisting of ball bearings and wooden frame. The price is about Rs. 600. The price of the machine with iron frame is Rs 1000. The diagram of this machine is given above. This machine is huge and can be moved from one place to another very carefully If the upper side may be separated, it can be carried away from one place to another very easily.

Vulcanizing Pan —Reels of the rubber coated wire that you have already manufactured with the aid of the extruder machine is still raw It cannot stand the test You have to heat it so that it may become durable and be able to serve your purpose. This wire is heated into the Vulcanizing pan Vulcanizing pan is just like a water tank It is fitted with a lid. Lift the lid and put the rubber coated reels into it and close its mouth with the same lid. The lid is tight fit. There is also a boiler fitted near it As you are seeing in the figure There is a pipe that joins the boiler

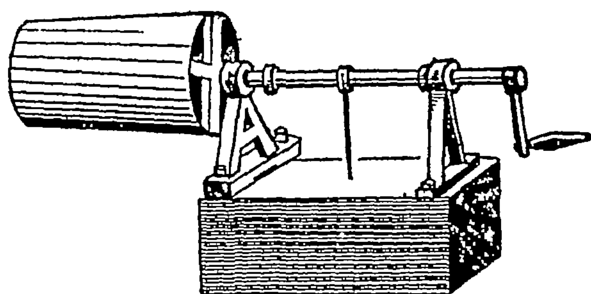


with the furnace The steam passes through this pipe' from boiler to the furnace When 60 lb steam is prepared in the boiler, the switch of the boiler is opened towards the vulcanizing pan in which reels of wire are placed The whole steam comes into the vulcanizing pan With the heat of this steam the rubber coated wire becomes durable within 20 minutes Now this wire is taken out of the pan and the second wire is put into its place for durability and strength The size of the furnace is of different kinds Generally a furnace of 19″ width and 36″ length is used Its price is from Rs. 2,500 to Rs 2,700 The thickness of the sheet that is used for making the furnace, is ¼″ or $\frac{1}{10}$″ All the machines of the cable wire industry can be had from Cottage Industry, P B. No 1262, New Market, Angoori Bagh, Delh -6

Taping and Insulating Machine—You might have seen the electric wires in the bazar These are wrapped into silken cloth or silken thread or yellow insulating paper This tape is wrapped with the aid of this machine The method of taping is very simple On one side the pulley and on the other side roll of tap is fixed on the pulley Both of them face each other As soon as the wire moves, the insulating material is wrapped on it. This machine is made of wood and iron The price of the wooden frame machine is Rs 450 The price of the iron frame machine is Rs 900



Measuring Machine —Now your wire is quite ready for use But there is one deficiency i e, the wire wrapped on reels is without measure The reels of 100 yards or of 200 yards wire are sent into the market for sale If you have no measuring machine in your possession, you will have a loss

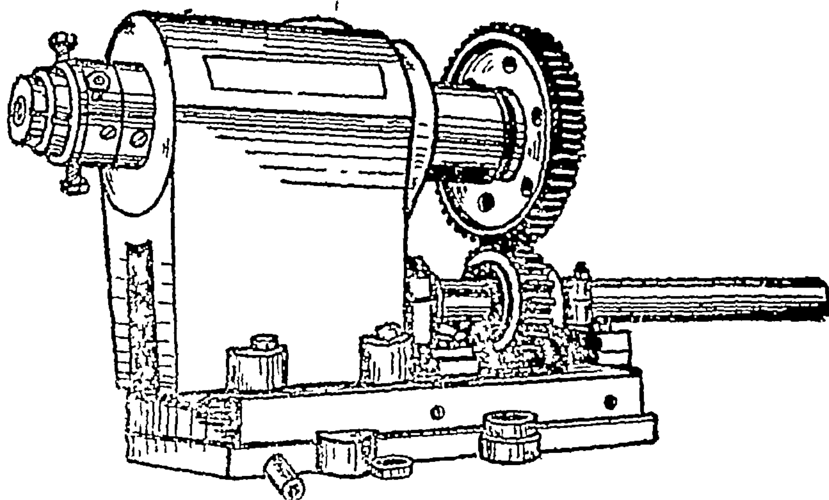


because it will take much part of your time You can finish the work of hours into minutes with the help of measuring machine. You can send the manufactured goods into the market for sale very quickly This machine is made of iron and wood This machine only does the measuring work. The price of this machine is Rs 250 For measuring the wire the coils are prepared The coiling machine only makes the coils of the wire The price of this machine is about Rs 150

Industry of rubber tube-making —Rubber is *caoutchouc* or India rubber It is a kind of un-vulcanized rubber Tube is a long hollow cylinder especially for conveying or holding liquids etc.

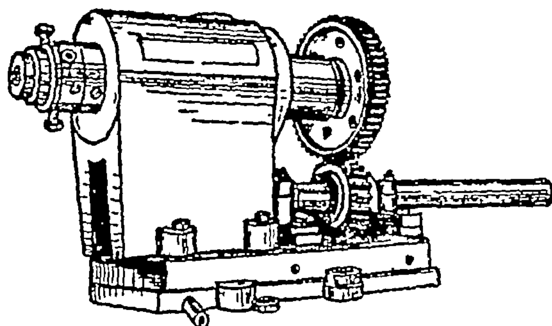
In every big or small city, rubber tubes are sold in a large quantity The size of these tubes is from cycle valve tube upto 2" diameter tubes that are sold in the market These tubes serve many purposes Water can be carried through these tubes from the floor to the upper storey Air is pumped into these tubes Gas is passed through these tubes Many useful works are taken from these tubes

The Method of rubber tube-making —The tubes that you



Big Machine

have manufactured with the aid of rubber mixing mill, should be cut into pieces of $\frac{1}{5}''$ wide These pieces are put into the feeder of the tube making machine The machine when operated, begins to manufacture tubes automatically The size of this machine is of two or three types. The figure of the machine is before you The



Small Machine

price of the machine without gear box and motor is Rs 750 to Rs 1000 The price of the machine with gear box and motor is Rs 3750

Note The compound that is written in the detail of Rubber mixing mill, quantity of that compound is not given The management of the Cottage Industry assures you that whoever buys the machines regarding cable industry, will be given the full formula of the compound

Colouring Machine When the tape is caught by the wire then the work of colouring the tape is performed. It brightens the wire The price of this machine is Rs. 250

Box and Carton Industry

The West is advancing in the way of progress There is no denying the fact that every country is making its utmost for progress but the people of the west are very considerate far-sighted and expert in the observation of things They make companies for Industrial undertaking

There is one profit of this is that the small capital of 10 or 20 men become a big capital in the shape of a company and, the other profit is that 10 or 20 men think over every problem that stands in the way of progress of the industrial undertaking The exchange of ideas gives rise to such a good result that the institution made by such persons always takes advantage of it The people of the West give great attention to the packing of every new thing They pack their goods in nicely packed up boxes This beautiful packing attracts the attention of the customer The packing is also a great asset for increasing the sale of every goods In Nature, every beautiful thing will attract your attention Scientists are also of one opinion on the packing of things That every beautiful packing attracts the attention of every person in India, the industrial concerns pack their things in nicely printed card board boxes In this way the price of their things increases and the sale also increases, the people who make the card board box or carton reap much profit out of this business Hundreds of persons are working in carton industries In some cardboard box-making industries two shifts of workers are working Apparently this industry is very small But when this industrial scheme is given a practical shape, then you will come to know that how much profit it can leave to you In reality, this is a much profitable industry If it is started very considerately, it can give great profit

This work can be performed with four or five machines The detail of the machines is given below These machines can be had from **Cottage Industry** Post Box No 1262 (K-8) New Market, Anguri Bagh, Delhi-6

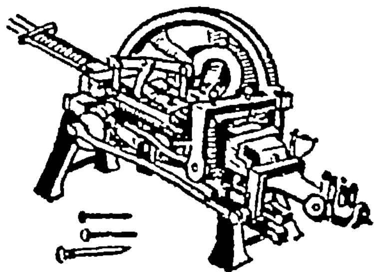
The working of every machine with its size and specification is given below —

Wire Nails Making Industry

Introduction —It is a small metal spike usually with point and broadened head driven in with hammer to hold things together or as a peg or ornament Nails making industry in modern times has a great significance Nails are required in every industry in the whole world There is no exaggeration, if we say that lakhs of tons of nails are used every day The goods prepared are sold in a very short space of time. Sometimes the machines of the nails manufacturing companies remain out of work on account of delay in sanctioning the fresh Quota from the Government The demand remains standing every day This industry is proved most beneficial and profitable at all times At the very outset one or two machines can be fixed or installed but later on it can assume the shape of a big factory Along with the nails making machines, there are seen the machines of screw-making, handles of the doors, bolts etc. The nails are made of two kinds—one are nails and the other is the panel pin *i e.* small nails

Kinds of nail-making machines —These machines are of four kinds. The peculiarities of the four machines are different Their functions are also different The working capacity of every machine is also different

First of all, Machine No 1 is called C type machine It requires a space of 6 feet long and 5 feet broad 5 horse power motor can run this machine Its (R. P M), *i e ,* Revolution per minute is 200. It can produce 10 hundredweights of goods within 8 hours The wire that is used



for nail-making in this machine is of wire gauge size from 8 to 12 The machine can make nails of 1½" to 4" The price of this machine is about Rs. 5900.

We take machine no 2. The name of it is B Type machine It needs a space of 5 feet long and 4 feet broad. 2 or 3 horse power motor is necessary to run this machine The revolution of this is (R P M) 225 It can make about 7½ hundredweights of goods within 8 hours Nail-making wire that is used in this machine is of wire gauge from 9 to 14 This machine can make nails of size 1 inch to 3 inches long The price of this machine is Rs. 4600

Machine No 3 is called A Type machine It can occupy 4 feet long and 3 feet broad space It needs a motor of 1½ horse power Its (R P M), i e, Revolution per minute is 250 and it can produce 3½ hundredweight of goods within 8 hours. The wire that is used for nail making is of wire gauge size from 12 to 17 This machine can make nails from ½″ to 2″ If you want to make panel pin in this machine you can make panel pin by using wire of 17 G wire gauge The price of this machine is about Rs 3600.

All the three machines mentioned above can make nails and are called crank Type

Panel Pins making machine —This machine requires a space 3½′ long and 2½′ broad Because this makes their size of panel pins, therefore it requires one horse power to run it. Its (R P M) i e., Revolution Per Minute is 300. This machine can make about 1½ hundredweights of goods within 8 hours The wire that is used in this machine for panel pin making is of wire gauge size from 17 to 19.

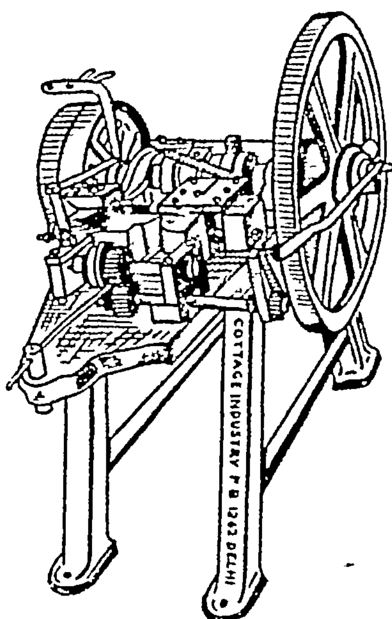
This machine can make nails from ½″ to 1″. The price of this machine is Rs 3600

AUTOMATIC SPRING LOADED TYPE WIRE-NAIL MAKING MACHINE

Specification -

Production -½″ to 2½″ long out of 11 gauge to 18 gauge wire Capacity :-125 to 240 nails per minute of all size. Power required 1½ H P. (Electric engine) weight -100 lbs approximately Space Required 4′-00″ x9″-00″

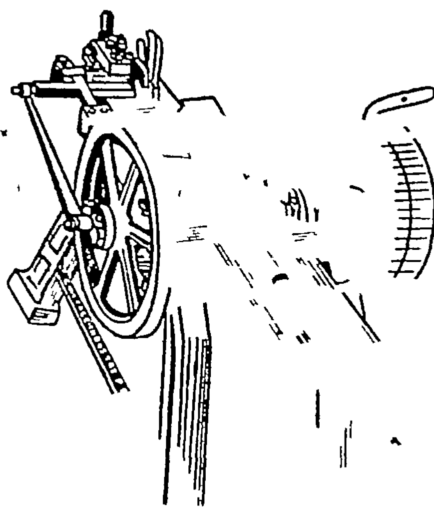
Price Rs. 2600.



Rivet Making Industry

Specification -

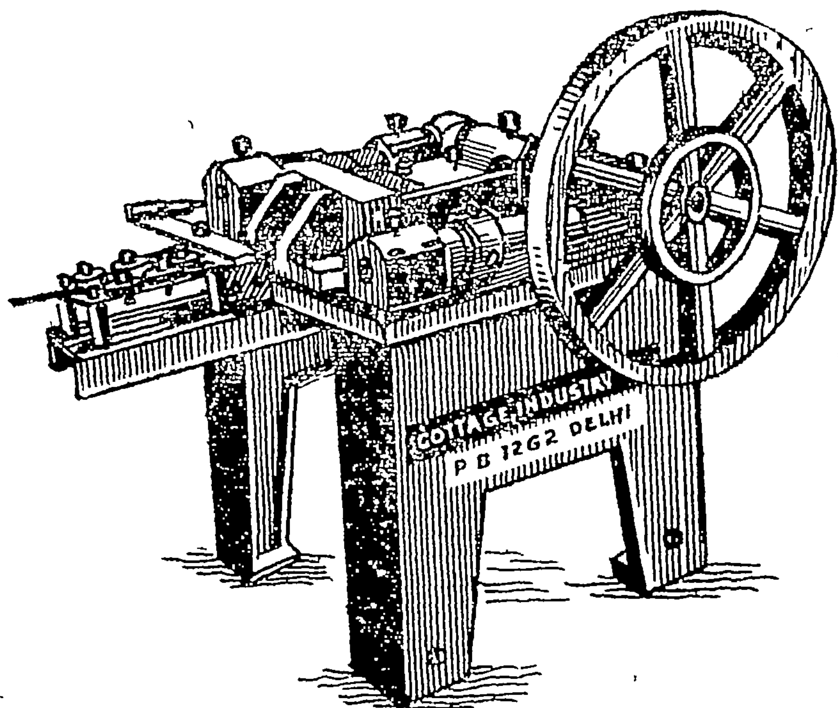
Production -Rivet No 4,6,8, 10, 12 and 14 out of 8 gauge to 14 gauge wire Capacity :- 200 to 300 Rivets per minute of all sizes Power Required 3 H P (Electricity or engine) weight -1150 lbs. approximately Space Required -4″-6″ ×



How much Quality of Steel wire is used for nail making :— Hard bright mild steel wire is used for nail making Steel H B wire can be had in $1\frac{1}{2}$ Cwts bundles The approximate rate of a SWG is for No 4 Rs 71, No 5 Rs 71, No 6 Rs 73, No. 7 Rs 75 and No 8 Rs. 75 per hundredweight It can be had everywhere in big cities like Delhi, Bombay, Calcutta, Madras etc

Wire Reel Stand —The wire that is used for nail making has a special wire reel stand It is fixed in the middle of the stand of reel of wire The wire taken out of it is fixed into the machine Machine automatically pulls the wire and makes nails These stands are of two kinds One is light type and the other is heavy type. The price of light type is Rs 100 and the price of heavy type is Rs 150.

The Machine that can polish the Nails —The wire that is used for nail making is dusty or rust eaten Therefore the nails that are prepared from this wire are somewhat rusty. They are also dusty and rusty Therefore as far as they are not polished they cannot be sold Nails polishing machine



removes their dust and rust and they become bright Nail polishing machine is of two types —A type and B type A type machine requires a space of 4½ feet long and 2½ feet broad Its (R P M) i e, Revolution Per Minute is 30 and it can polish about 2½ hundredweight within an hour. The price of this machine is Rs 725 B Type machine requires 4 feet long and 2 feet broad space and its (R P. M) i e., Revo lution Per Minute is 30 and it can polish 1½ hundredweight of nails within half an hour The price of this machine is Rs 600

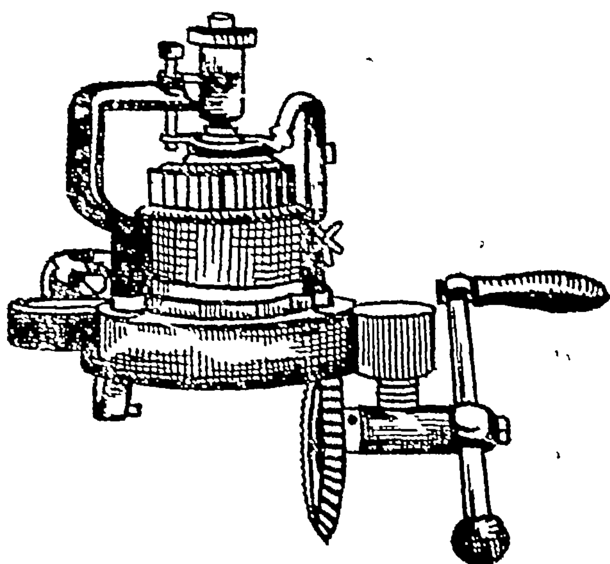
Method of making Panel Pin and Nails :—With the aid of rollers that keep the wire straight, the wire is drawn into the machine automatically There is grip before the rollers This grip catches the wire and pulls it forward This grip draws the same portion of the wire which is needed for the manufacture of the nail If you want to make a long nail, the longer portion of the wire is pulled If the shorter nail is required to be made, the shorter portion of the wire is pulled This grip is an ordinary one and it catches the shorter springs of the wire With the aid of this grip, the determined quantity of wire reaches into the moulds of wire The mould that makes the head of the nail is called the ram and is attached at the end With the aid of rod that joins the crank shaft in the centre, the mould is moved forward and backward The punch fitted in the head-making mould hits at the front part of the nail and makes the head of the nail We hit at the head of the nail for fixing it in wooden boxes When the head of the nail is completed, the wire catching moulds open The machine pushes this wire forward In the meanwhile, the machine cuts the nail at the proper size These moulds when press the final portion of the nail they make signs on the nail i e, the mouth of the nail is completed This is called the thinner end or pointed end of the nail

When the machine presses, the actual shape of the mouth of the nail is finalised Now this nail is completed but it is somewhat joined with the wire which is coming from behind Now at the end automatically driven trigger cuts the end of the nail In this way, the nail falls down at the finished stage

Methods of polishing the nails :—The nails that are prepared with the aid of the machine, contains a kind of rust over them There may be some lubricating oil over them All these defects can be removed by polishing the nails These polished nails along with wooden powder and iron pills are put into a drum and the drum is closed from outside It is revolved It takes 30 to 50 revolutions in a minute The nails put inside the drum become clean with the friction of iron pills and wooden powder The more the polishing of the nails is required, the more the revolving of the drum is required The nails will be ready within half an hour.

Hosiery Industry

With the advancement of science, the requirements of the man have advanced The scientists have proved that a healthy mind lives in a clean body. One of the medical practitioners has said to such an extent that cleanliness is next to godliness A clean man lives a long life. Socks on the feet and underwear on the body have a great significance from the hygienic point of view The socks protect our feet from dust and dirt whereas the underwear (bunyan) soaks the sweat of the body and passes it to the air and keeps the body cool and healthy The socks are used in two ways now-a-days One use is for the protection of the feet and the second is for adorning the body The protection of the body is not aimed at by the general people They are the slave of the fashion You might have seen that there are socks of many designs at the shops Newly designed socks are knitted worth lakhs of Rupees every day and are sold daily Hosiers or dealers in hose and frame-knitted or woven under-clothing get much profit out of this industry This business is very simple The machines that knit the socks are driven by the hand. The boy or girl of an ordinary intelligence can knit many pairs in a machine within a day time



The factory owners or hosiers who are running this industry have set up many machines and great many men are employed by them The long and short of it, is that this industry is very profitable If it is done carefully and ten or twelve machines are set up, then Rupees 400 or 500 may be earned monthly

What numbers or cotton yarn is used for knitting the Socks —

Woollen	2/75	,	3/10 S	or so.
Cotton	4/12	—	4/10	or equal
Woollen	2/20	or	2/18	or equal
Cotton	2/10	or	2/12	———
Woollen	2/22	or	2/24	or equal
Cotton	2/14	or	2/16	or equal
Woollen	2/26	or	2/28	———
Cotton	2/18	or	2/20	or equal
Woollen	2/30	or	2/32	or equal
Cotton	2/20	or	2/22	———
Woollen	2/38	or	2/40	or equal
Cotton	2/28	or	2/30	———
Woollen	2/48		× ×	or equal
Cotton	2/32	or	2/36	———
Mercerized & cotton	2/40			2.42.

What size of needles are used for knitting the socks — First of all we should have a knowledge of the number and quality of the needle After it we should know the number of the needle that is required to be fitted in every cylinder and dial At last we should know the quality of the needle that is to be fitted into the diameter according to the diameter of the socks What is the number of it We should be fully aware of it For instance, you want to knit socks of $4\frac{1}{2}''$ diameter, you should fix 139 H quality of needle on the knitting machine and needle No. 84 will be used at the cylinder. The quality of it should be 136H. Needle No 42 and quality No 84-D should be fixed at the dial We are giving in a chart from the number and quality of the needle that is usually used in cylinder and dial with every diameter You can fully grasp it at a wink —

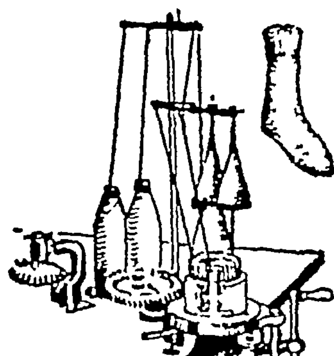


CHART Showing Diameter, Type Quantity of Needles

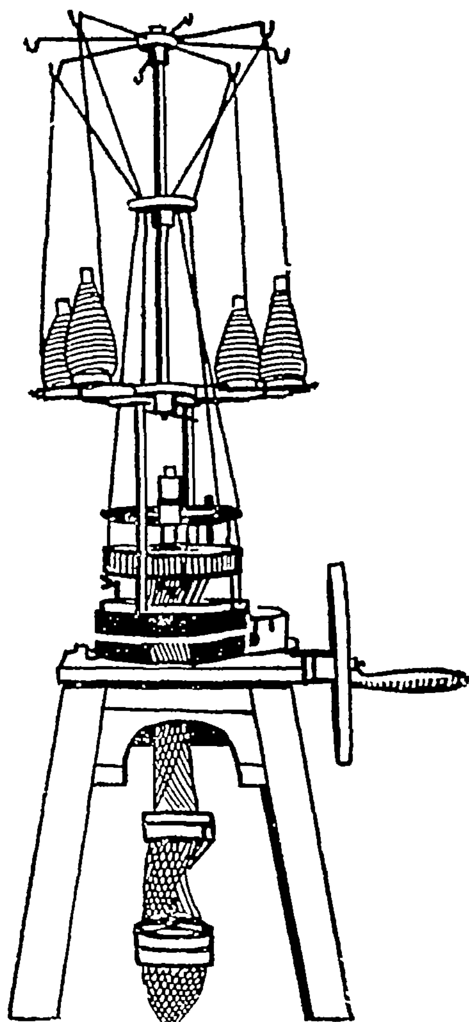
Diameter	Dial (D) or Cylinder (C)	Needle No	Quantity No
3¾″	C	72	136—H
,,	D	36	83—D
,,	C	108	141—H
,,	D	54	180 D
,,	C	120	146—H
,,	D	60	186—D
,,	C	132	600—H
,,	D	66	628—D
,,	C	144	600—H
,,	D	72	628—D
,,	C	168	605—H
,,	D	84	628—D
,,	C	184	605—H
,,	D	92	625—D
,,	C	216	605—H
,,	D	108	625—D
3½″	C	96	141—H
,,	D	48	180—D
,,	C	108	146—H
,,	D	54	180—D
,,	C	120	600—H
,,	D	60	628—D
,,	C	132	600—H

Diameter	Dial (D) or Cylinder (C)	Needle No.	Quantity No
$3\frac{1}{2}''$	D	66	628—D
,,	C	156	605—H
,,	D	78	628—D
,,	C	172	605—H
,,	D	86	625—D
,,	C	200	605—H
,,	D	100	625—D
$3\frac{1}{4}''$	C	60	139—H
,,	D	30	622—D
,,	C	90	141—H
,,	D	45	622—D
,,	C	102	146—H
,,	D	51	622—D
,,	C	112	600—H
,,	D	56	625—D
,,	C	122	600—H
,,	D	61	625—D
,,	C	144	605—H
,,	D	72	625—D
,,	C	160	605—H
,,	D	80	625—D
,,	C	186	605—H
,,	D	93	625—D
$3''$	C	84	141—H
,,	D	42	622—D
,,	C	96	146—H
,,	D	48	622—D
,,	C	108	600—H
,,	D	54	625—D
,,	C	120	600—H

Diameter	Dial (D) or Cylinder (C)	Needle No	Quantity No
3″	D	60	625—D
,,	C	132	605 H
,,	D	66	625—D
,,	C	144	605—H
,,	D	72	Baby—D
,,	C	172	605—H
,,	D	86	Baby—D
2¾″	C	78	141—H
,,	D	39	154—D
,,	C	88	146—H
,	D	44	154—D
,,	C	100	600—H
,,	D	50	154—D
,,	C	104	600—H
,,	D	52	154—D
,,	C	120	605—H
,,	D	60	154—D
2½″	C	72	146—H
,,	D	36	7—D
,,	C	80	146—H
,,	D	40	7—D
,,	C	96	600—H
,,	D	48	7—D
,,	C	108	600—H
,,	D	54	7—D
,,	C	120	650—H
,,	D	60	7—D
2¼″	C	60	146—H
,,	D	30	Baby—D

The Method of Socks-knitting

From the above given chart, you might have understood that for what size of diameter of socks, what needle and



what quality should be For what quality of socks, what number of yarn should be used You might have understood fully.

The work of knitting socks is very simple Of which number of yarn, you are required to knit, the reel of that number should be prepared. Place the reel on the upper rand of the machine Pass the yarn through the vertical cylinder and move it on to the needles At revolving the wheel of the machine, sock is knitted automatically A weight is attached below the machine This weight keeps the knitted parts of the sock suspended below. On the other side machine operating handle is revolved and the knitted sock is suspended below This is very simple work Every person can do it very easily

The prices of the socks knitting matchine —The price of the socks-knitting machine depends upon the needles that are used at the machine The number and quality is fitted on the machine according to the diameter of the sock The price determining factor depends upon the needles.

Price of the spare Parts —Design wheel. Complete with camshal Yarn Guide and Bibbin Career at Rs. 85-00 each Platting Attachment Complete with Bobbin Career at Rs. 85 00 each Double sole at Rs 20-00 each Elastic Laying in attachment

Type (A) gives elastic in every Rand at Rs 15·00 each.

Type (B) gives more elasticity and ware to the products at Rs 30 00 each.

All these machines can be had from the Cottage Industry. Post Box 1262, Anguri Bagh, New Market, Delhi

machines One of them is called interlock and the other is called Sinkar Body

The interlock machine is enclosed within a wire gauge from all sides It knits the cloth and enwrap it by its own accord. The Sinkar Body machine is open Every thing appears clearly in it This machine can be run by one horse power motor The revolution of the Interlock machine is 40 per minute yarn of 36S, 40S, 120D, 60S is used in this machine and the number per inch of courses is 32, 40, 42 per inch The machine that contains 16 dies can make 2 lb to 3 lb of goods The price of this machine is Rs 4900 In the Sinkar Body machine 20S of yarn is used and each inch contains 32 courses The revolution of it is 50 If the machine is of 14 dies, it can manufacture 7 lbs. of goods within an hour The price of this machine is Rs 4200

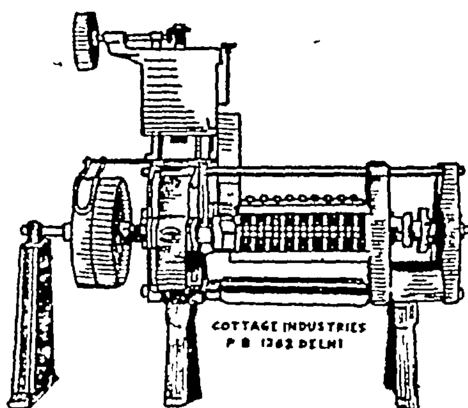
Oil Extracting Industry

The population of India is about 40 crores It is increasing every year. As a result of it, the demand of everything is increasing The present factories that are making the consumer's goods cannot meet the growing demand of the present population of India Therefore we have to increase the number of our factories and workshops Now the question arises that how much profit may be reaped from the new started factories It is obvious that when the goods manufactured are sold in an instant. they must leave some margin for the factory owner There is no doubt about it, India is a great country. Everything can be consumed in it in a great quantity Oil is also an essential thing for them, The meaning of the world "oil" is taken for mustard oil, Coconut oil, Sesamum oil, Clove oil, Almond oil, groundnut oil, neem oil, etc This oil has in great importance at its own place in every country Most probably the Kashmerese eat mustard oil instead of *Ghee* They think that oil is more beneficial than *Ghee* In the same way, in Madras and Bengal, groundnut oil is consumed in great quantities In Bombay and Maharashtra, every kind of oils are used.

The factories that are doing the work of extracting the oil from oil-seeds are getting a lot of profit out of this business The goods that are manufactured are sold very soon. And the demand still remains for more goods There is a great scope for this industry in every country You can start this business at any place you like It does not require a big factory or a spacious place to perform this business. You can start the work of oil-extracting on a shop You will have to keep the following things to start this business

No (1) Electric Connection, (2) Electric Motor, (3) Oil Expeller, (4) Oil Filter Press, (5) Seeds for extracting the oil, (6) *Mistri* (7) Labourer

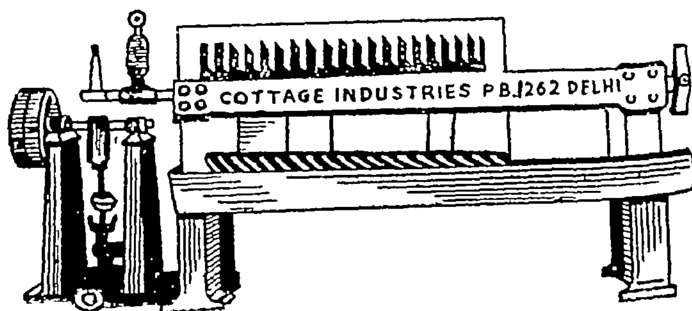
The expeller can extract oil out of 3 maunds of mustard seeds within an hour. If the machine is operated in a thorough and systematic manner, it can give more output of oil than that of the abovementioned quantity 7-8 horse power electric motor is required for putting into operation the Standard Baby Oil Expeller This expeller can extract 8 or 10 maunds of oil within 8 hours One-third of oil can be extracted out of the mustard-seeds, i.e , out of three maunds of mustard seeds, one maund of oil can be extracted and 2 parts are of oil-cake or (*Khali*) which is given to the cattle as a fodder Generally speaking, oil-cake is a mass of compressed linseed etc , left when oil has been expressed, used as cattle food or manure This expeller has nine *Bolts* Its weight is 45 maunds The diameter of the pulley is 24″ Its R P M is 180 The price of this expeller with steam kettls, is Rs 3700



Medium Baby —Contains 6 Bolts Its weight is 30 maunds The diameter of the pulley is 20″ Its R P M is 160 The price of the medium Baby with its steam kettle is Rs 2400

Expeller of the Sohlar Baby Type contains 6 *Bolts.* Its weight is 25 maunds. The diameter of the Pulley is 20″ and R P M. is 180 and its weight with the steam kettle is Rs 2300

Popular Filter Press —The oil that is extracted by the oil expeller comes out hastily and forcibly It contains some impurities like oil-cake If it is not filtered with a filter press, then the impurities settle as sediments after 15 days and the oil becomes some-



what clear and pure Then it can be sold. And if you want to sell the oil instantly, you will have to use the Filter Press The peculiarity of the Filter Press is this that it can Filter the most impure quality of oil. It can filter it crystal clear

Therefore in the extraction of oil both oil expeller and Filter Press are essential There are three or four sizes of these Filter Presses Their detail is given below. The size of the Filter Press is 14"×14". The number of its plates are fourteen It can filter about 22 maunds of oil within eight hours Its price is Rs 1350

No (2)—The size of this Filter Press is 16"×16". The number of its plates is 16. It can filter 26 maunds of oil within 8 hours Its price is Rs 1450

No. (3)—The size of this Filter Press is 18"×18" The number of its plates is 18 It can filter about 30 maunds of oil within a day Its price is Rs 1750.

No (4)—The size of this Filter Press is 24"×24" or 22" ×22"

The number of its plates is 24. It can filter about 55 maunds of oil within a day. Its price is Rs 3200 The profit of the oil factory ranges from Rs. 5 to Rs 10 per maund This depends upon the ability of the factory owner. You can buy oil Expeller or Filter Press from **Cottage Industry (K-8), P B. No 1262, New Market, Anguri Bagh, Delhi-6** You should place the order to the *manager of* the workshop of the *Cottage Industry* beforehand at the above mentioned address —

This is a big machine It takes much time in its manufacturing and for its accessories

Ice Cream Industry

Ice-cream is the fruit of summer Ice-cream is a flavoured cream or custard congealed in freezing-mixture There are a few people who do not eat sticks of ice-cream once or twice daily The children are not pleased by sucking ice-cream many a time during a day The demand of it is so much increased that the people have installed big ice candy plants. Lakhs of sticks are being frozen and sold daily. Ice-cream sellers are seen in streets, bazzars and roads selling their product

The main cause of the increase of this business is that every man, rich or poor, can easily buy a stick of ice-cream. The price of it is dam cheap, i e., one pice, two pice, one anna etc

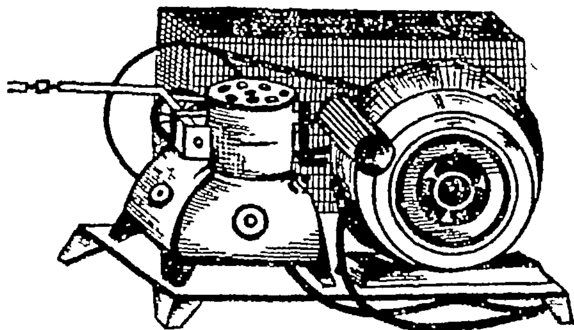
This work can be started with a small capital as well as with large sum of money This industry which is run by electricity requires about fifteen thousand Capital investment On the other hand, small ice cream industry which is frozen by ice requires only about two hundred Rupees. It is very profitable industry Those who are dealing in this line are earning a lot of money every year

No 1	Electric Motor	No 2	Frick Complete Unit
No 3	Churning Machine	No 4	Cabinet
No 5	Mould for Ice cream	No 6	Packing Material
No 7	Selling Cart.		

Electric Motor —At least 3 horse power motor is essential This motor operates 2 horse power Frick Complete Unit The motive power should be one horse power greater than the horse power of the Unit If it is not possible and both the powers are equal, the work can be performed somehow or other These motors are of three types.—No 1 (A C) No 2 (D C) No 3 Universal i e, A C and D. C. both The price of the 3 horse power motor is Rs 800

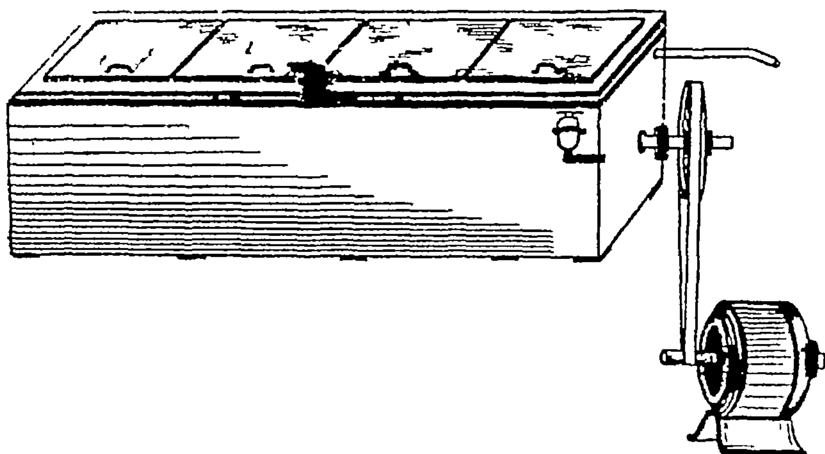
Frick Complete Unit —Frick is the name of an English company that is manufacturing units of cooling gas Gas pipes are taken out of this unit The thing that is aimed to be cooled is coiled all around Saltish water is poured in the centre of the coil These gas containing pipes revolve

the gas around the water This process exhausts the heat of the water and comes upto zero degree The thing that is put into it for freezing can be frozen within 8 or 10 minutes



These units are of greater power than this These are imported from foreign countries. The pipe goes from this unit to the cabinet The price of this complete unit is about Rs 2500 Gas is supplied from this unit to the cabinet. It also applies gas to the churner

Ice cream Freezing Cabinet —This cabinet is just like a vast box The size of this box is 8 feet long, 3½ feet broad and 3 feet high There are 4 small rooms separately made. There are two compartments which contain at least 300 feet pipe of ⅝ ft size This pipe is wrapped into the shape of a coil In these rooms there are



ice cream moulds These moulds are in sets of 30 each. 10 or 12 can be fixed at a time for freezing These become ready

within 10 minutes i e, 360 ice cream sticks can be frozen within 10 minutes You can prepare 2040 ice cream sticks very easily within an hour After 10 minutes 30 ice cream boxes are taken out of the freezing pan and are dipped into the ordinary water of the pipe By this process, the coolness of the box decreases and ice cream box can be taken out of it successfully. Now all the sticks are taken out and placed in a tray. The lebels on which the name and address of the company is printed are sticked around the sticks These sticks are placed into the cooling chamber These cooling chambers are made of steel Cork is fixed in the middle of the cooling chamber so that heat may have no effect on the frozen ice cream The ice cream placed into it cannot melt it Now this frozen ice cream is taken out of the cooling chamber of the factory and is put into the cooling chamber of trollies It is sent into the bazar for sale. The two rooms in which the ice cream freezing boxes are placed are empty at the initial stage. These are filled with ordinary water of the pipe Ten seers of salt is put in this water. A fan is fitted at the bottom of these rooms This fan is run with the help of a small machine. The aim of this fan is this that the salt that is put into this water is dissolved by the aid of this fan and the fan does not allow it to settle down in any case

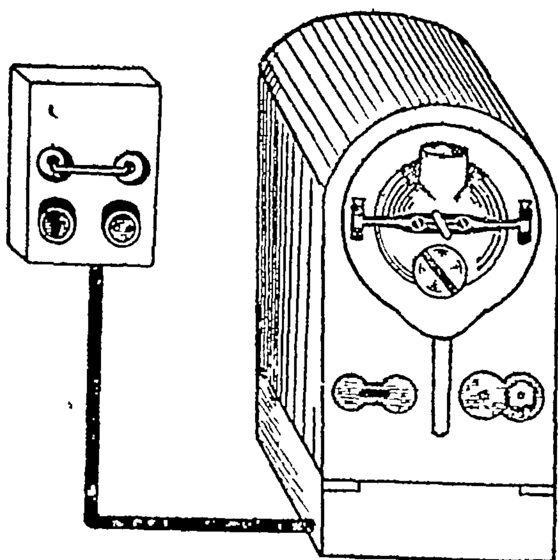
How to make cups of ice cream. The ice cream that is sold in the market is of two kinds One is in the shape of a cup and the other is in the shape a stick The method of stick-making is this that there is a set of ice cream making moulds The ice cream mixture is filled into them and a wooden stick is fixed into the middle of every mould This box is put into the two columns of the cabinet in which there is freezing chamber and salt containing water is filled and is being cooled with the aid of Frick Complete Unit This ice cream stick is prepared within 10 minutes This box, when taken out is dipped into ordinary water The sticks are taken out of this box and arranged into a tray Then lebels are sticked at them and sent into the bazar for sale But we have to use some other method for cup making Take a vessel of stainless steel or tinned from inside 4 or 5 seers of ice cream-making mixture is poured

into it Now this filled vessel is put into the freezing pan i e., it is put into the salt water containing chamber Now first ice cream is prepared within 10 minutes. But we have to take out the vessel after the passing of 7 minutes i e, it will not freeze properly Now take a big spoon and take out of the vessel half of the frozen ice cream with the aid of the spoon and put it into the paper cups These cups should be placed into the cooling chamber store

These become ready within four or five minutes These are put into the cooling chambers of trolleys and are sent into the market for sale The price of this ice cream freezing chamber is Rs 3500 Its size has been described above This can be had from Cottage Industry, Post Box No. 1262, Anguri Bagh, New Market, Delhi If you want to buy electrical Motor or Frick Complete Unit, churner machine and ice cream selling trolley, our company can supply all these things

Churning Machine : – This Machine is used just like a wooden churning stick This is used for churning the mixture of ice cream

The churning machine or shaking machine does the work of churning the milk or whey so as to get butter But this machine is not used for extracting butter. This doubles the ice cream mixture i, e, it doubles the volume of ice cream mixture That is, a thing whose weight is one chhatak and can be filled in a small vessel, when poured into this churning machine and churned, will be put into a big vessel instead of a small vessel. Ice cream production



becomes double by the aid of this machine This machine is also an essential part for this industry This machine is made in the foreign countries There are many companies that manufacture such machines 1½ gallon mixture can be churned into this machine at a time. There is a small motor attached to it This is operated with the aid of this machine

Mould for ice cream·—The ice cream freezing moulds are of two kinds One of them are made of tin and the other is made of copper The shape of these moulds also differs These are made according to the demand of the region or customer. Somewhere flat ice cream is prevalent, somewhere square shaped and somewhere round The ice cream which is put into copper mould costs Rs two per mould and tin mould costs Rs 1½ per mould The set contains thirty moulds These sets are made according to the Freezing pan These ice cream freezing sets can be had from the Cottage Industry, P B No 1262, New Market, Delhi

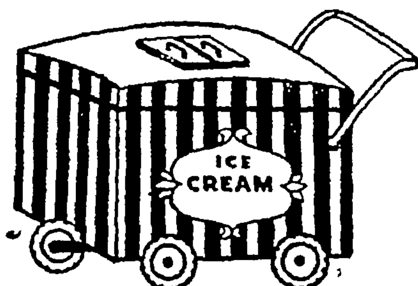
Ice cream selling Trolleys —These trolleys are of two kinds One kind is that whose wheels have the size 16″×4″ and its wheels are filled with air All around their walls, the cork is fixed in the middle so that the outer heat may have no effect upon it The price of this trolley is Rs 650. The size of the other kind of trolleys is 12″× 2″ These are somewhat small in size Its walls also contain cork in the middle. Its wheels are solid. Its price is about Rs 375 This can be had from Cottage Industry, P. B 1262, Delhi



First Method of making Ice cream —Ice cream is of two kinds. One of it is sold at annas eight per stick and the

other is sold in annas two per stick One or two annas stick contain no condensed milk (Khoya) Eight anna stick contains condensed milk The remaining method is the same

The water and sugar should be mixed in the proportion of 4 and 1 i e, if the water is one seer, 4 chhataks of sugar should be added to it Sugar should be dissolved into water in a very good manner and put some colour according to your own choice The colours should be the same as are used for eating purposes. Now fill this mixture into the moulds and fix the stick into the middle of it For the first time the ice cream will take half an hour in freezing After it, the ice cream sticks will be ready after every five minutes



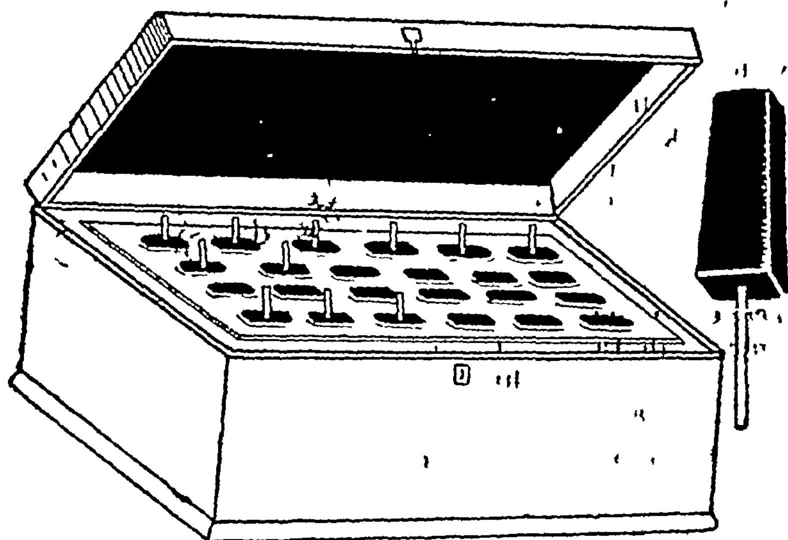
Second Method of preparing ice cream —Milk one seer, and sugar 4 chhataks, both should be mixed thoroughly Now fill the moulds with this mixture and fix the stick into the middle After a little while the ice cream will be frozen

Third Method of preparing ice cream :—Milk one seer, sugar 4 chhataks, condensed milk 4 chhataks All these things should be mixed together thoroughly This mixture is put into moulds In the middle of each ice cream a stick is fixed After a little while ice cream will be ready

Fourth Method of preparing ice cream —Water half seer, milk 4 chhataks, sugar 4 chhataks, all these things should be mixed together thoroughly Fill this mixture into the moulds, and fix the wooden sticks that are used in the ice cream. After a little while the ice cream is ready

———

The method of preparing ice-cream.—There is a wooden box for freezing the ice-cream. There is a tin box fitted, between it. Put 12 seers of broken ice in the tin ice-box and spread over it powered salt Now the ice-cream plate is set into it One plate contains 12 or 24 moulds of ice-cream should be set properly in the broken ice so that no



difficulty may be felt later on Now prepare the ice-cream with these moulds by the following methods and sell it into the bazaar As far as the ice will not melt into the shape of water the ice cream will freeze

2 **Method of preparing the Ice-cream** —The water and sugar should be mixed in the proportion of 4 and 1, *i e*, if the water is one seer, 4 *chhataks* of sugar should be added to it Sugar should be dissolved into water in a very good manner and put some colour according to your own choice

The colours should be the same as are used for eating purposes Now fill this mixture into the moulds and fix the stick into the middle of it For the first time the ice-cream will take half an hour in freezing. After it, the ice-cream sticks will be ready after every five minutes

3 **The method of preparing ice-cream**—Milk one seer and sugar 4 *chhataks* both should be mixed properly Now fill the moulds with this mixture and fix the stick in the middle. After a little while, the ice-cream will be frozen.

4. **The method of making ice-cream**—The ice cream is sold by putting in such trollies.



Milk one seer, sugar 4 *chhataks* condensed milk 4 *chhataks* -all these things should be mixed together thoroughly This mixture is put into moulds In the middle of each ice-cream a stick is fixed After a little while ice-cream will be ready

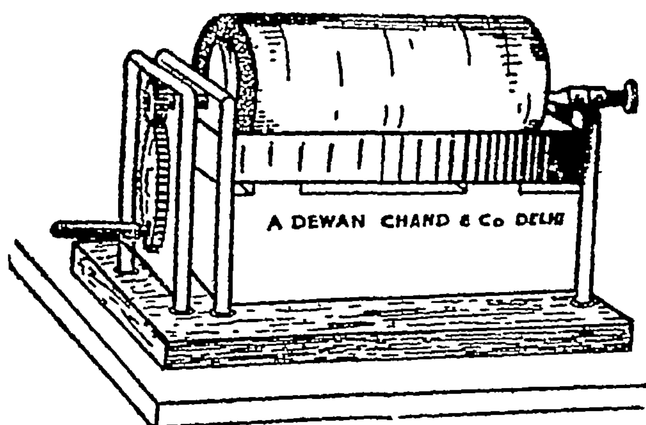
5 **The method of making cheapest quantity of ice-cream**—Water one seer, colour according to choice and screen instead of sugar—all these things should be mixed together thoroughly Screen is put in such a little quantity that its weight can-

not be written. Only the tongue can tell the sweetness of water The cost of production of this ice-cream is one pice for three sticks of ice-cream But such an ce-cream should not be prepared because screen puts a bad effect on our health.

6. The method of preparing ice-cream – Water half seer, milk 4 *chhataks,* sugar 4 *chhataks*—all these things should be mixed together thoroughly Fill this mixture into the moulds and fix the wooden stick that is used in the ice-cream. After a little while, the ice-cream will be ready

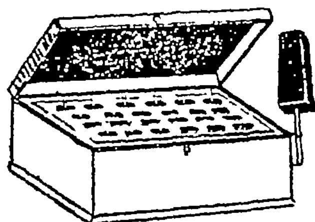
This work is very profitable Do not finish it by reading it only but attention should be devoted towards this business.

Note—When the ice-cream has frozen and you want to take it out, then take out the mould out of the box and dip its lower part into the water After it, take out the ice-cream By this way the ice-cream will come out quickly from the mould.

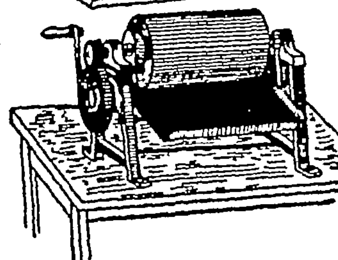


The ice-cream of milk —The above ice-cream is sticky and the milk ice-cream is just like frozen cream There is a wise saying —"Something is better than nothing" In this way

the man's brain thinks over new schemes and plans daily He thinks that some new invention should be introduced He would feel some anguish and misery at his heart. Therefore he feels hesitation in following the old methods The field of science is vast It can be extended as much as you like The following is the picture into which there is a round drum The ice is filled into it and it is closed In the lower portion, some flat seats are visible After mixing the sugar with milk, the mixture is poured into the tray Because the drum is filled with ice and it becomes cold Therefore with the aid of a hand, revolve it. By revolving milk will stick to the drum and freeze This is the ice-cream of milk By scratching ice-cream from the drum and putting into plates, you can sell it



(1) Small Ice Cream Box



(2) Small Ice Cream Machine

Where the ice-cream machines and boxes are available — Ice-cream freezing boxes and machines are of three or four types. Price of one (25-ice-cream freezing box is Rs 60) (2) The price ot 50 ice-cream freezing box is Rs 115 and (3) The price of one hundred ice-cream freezing box is Rs 225 The price of the milk freezing machine is Rs 180 These machines and boxes can be had from the Cottage Industry, New Market, Anguri Bagh, P. B No. 1262, Delhi-6.

Aerated Waters

In the modern times Soda water has attained a high significance in the high gentry Not only this. It has become the necessities of human life It has become the great necessity of progress and civilization The main cause of its popularity is this that it gives a refreshment and new energy to the body If Soda Water may be prepared with the real method, its every draught cannot only give the taste of nectar in the summer season but also invigorates the body and soul. It is very intensely needed in hot regions especially in our own country In the thickly populated parts of the country, there is a great number of Soda Water Factories. All the same, there is a vast scope for this business. Aerated Waters refreshes our heart and soul It is also used as a medicine There are three kinds of it.

1 Plain.

2 Saline

2. Sweet.

1 **Plain** —This kind of syrup mixed with soda water has a high place It is one of the most popular syrups It can be prepared with the aid of a big or small machine It is prepared by mixing carbonic acid gas with the solution of soda bicarb When these two are mixed, a pressure of a special degree is produced.

2. **Saline** —This kind of soda water is prepared by a combination of saline things. In this way, it becomes like water of natural spring The most important of these waters are Lithia water, Biaris water, Potash water, Radiaris water Seltza water, Vitchy water, etc

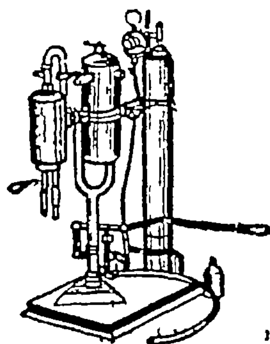
3. **Sweet Waters** —These are a kind of syrup-like aerated waters. It is prepared from carbonic acid gas It also con-

tains essences of special fruits such as Lemon, Ginger, etc, these aerated waters have a great significance because they are used in large quantities

As has been explained before, Soda water is made by mixing carbonic acid gas into water mixed soda bicarb It shows that there are separate stages for making soda water These stages are the following —

1 Getting of pure or purified water and storing it into clean tankis The water that is used for the preparation of aerated water should be clean and purified There should be no bacteria in that so that they may not enter into the human body and impair it For this purpose, the rain water is the finest of all

The river water can also be used but before using such a quality of water, it should be purified There should be no particles of impurities in the water



Generally, the water of a well or a spring can be used for making aerated water In cities or in towns where filtered water is supplied, curd is used there The first and foremost thing to be borne in mind is that water should be clean and pure It is very essential that the tank and tankies that are used for containing water, should be very clean There should be a lid It is essential that their water may be changed Because if the water is not changed, it is probable that tiny germs may render the water unfit for drinking purpose

The water should be kept at a cool place because cold water can be aerated in a better way than the hot water.

2 To dissolve soda bicarb in water——this process, can be performed in essential conditions and 175 grains of soda bicarb can be used for one gallon of water

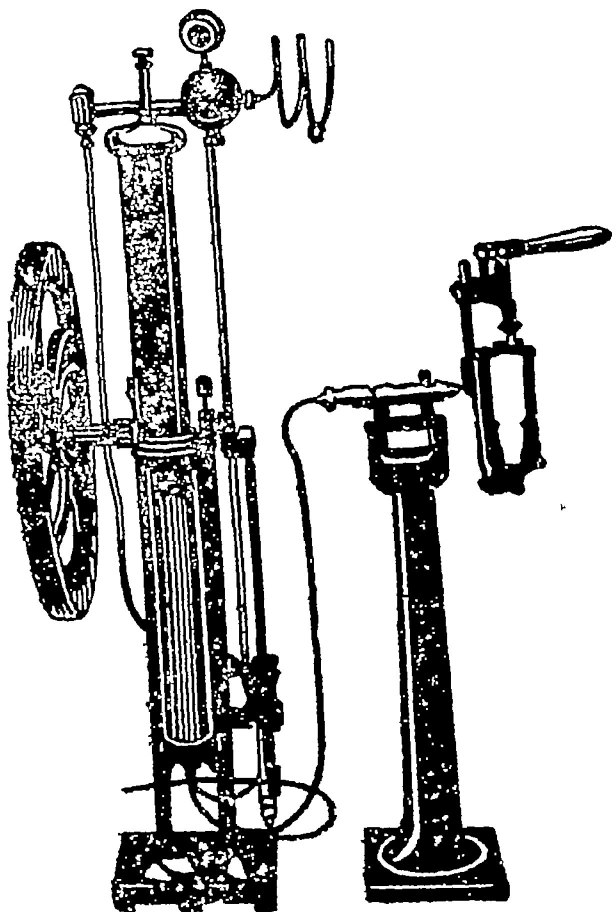
Pressure gauge and regulators are fitted with this cylinder. Regulator nut is fitted at a point and it cannot go higher than 120 lb It is all done for this purpose that a lay-man also may do his work by distracting his attention from the gas and in the bottles, the pressure of the gas is equal When this degree is attained, the gas may be opened to enter into the bottle. The handle of the machine may be given about fifty or sixty revolutions in order to aerate the soda water or Lemonade in a proper manner and when the revolving of machine is stopped The mouth of the bottle should be kept downward. By this way, the pressure that will be near the mouth of the bottle will let the water come out. Then the gas is closed.

Now the pressure of the outer gas is removed. The gas inside the bottle will expand and the glass pill inside the pill bottle will advance hastily towards the rubber ring Then take out the bottle from the machine after, revolving it twice or thrice Now it is ready.

Crown Cork Machine:—Crown machine is a machine which is used for fixing corks in the bottles. It works with the pressure of the machine and is put on a cylinder for closing the bottles This cylinder is filled with the air that comes under pressure supplies a small pressure instrument. This part is fixed with the machine.

Besides, this machine gives no sound at the time of operation or under work. Because there are no spring or complicated joint etc. By this way the crown cork is fitted very tightly at the mouth of the bottle

Price for the machine that can fill two bottles is Rs 425.
" " " three " " Rs. 500.
" " " Four " " Rs 750.
The price of the gas filled cylinder is Rs 150.



Syrups of Every kind —For filling the syrups every size of machines can be available. These machines are made in such a way that to fill the bottles, an equipment is fixed with them. There are one or two other instruments fitted to fill the bottle and we can say it filler.

We can fill crown cork bottle, pill containing bottle, scrotype bottle or syphon bottles, etc. In this way different

bottles can be filled according to the quantity of syrups Be careful that bottle may be filled upto a special or fixed place That place should be neither too low nor too high.

By revolving the wheel, the water is carried into the copper reservoir with the aid of the pump By reaching there, the water is thoroughly mixed with the carbonic acid gas

Such machines are driven by the hand or by fitting a pulley with the shaften, the machines can be driven by the aid of electricity

To prepare Lemonade, with some machines a separate juice pump is fitted.

With one machine only, different kinds of fillers can be adjusted They can work at a time and these fillers can be fitted round one stand only

The general method of preparing soda water is this that water and gas are made homogeneous in the copper reservoir with the aid of machinery In this reservoir, water is passed through a pump and water and gas become homogeneous. The reservoir is filled with small pebbles or glass pills

When the water goes to it through the pump it has to pass through these pills little by little The gas also goes with it This water and gas pass through curved path and become homogeneous Later on, with the aid of the filler, bottles can be filled

About 40 years back, aerated water was prepared with the aid of a machine That machine was called soda water pump at that time This high power driven machine draws with the aid of a gas meter C C 2 of gas and water from the

water reservoir Water and gas was mixed with an instrument in a cylinder which supplied gas and water to the filler in a ready form The system of taking gas from the reservoir is not in vogue now-a-days and the gas is available in closed cylinders Now the hand or power driven machines came into being

We shall try to throw a flood of light on aerated water industry in the coming chapters This industry can be started with one or two thousand rupees If you want to start this industry on a large scale, you can invest much on this industry The small investers set up a machine that can fill four bottles at a time Sometimes they set up such machines as can fill two bottles at a time The price of the machine that can fill two bottles at a time is Rs. 375. The price of the machine that can fill four bottles at a time is Rs 750 only The price of the gas filled cylinder is Rs. 150 These machines can be had from Cottage Industry Post Box No. 1262, (K-8) New Market, Anguri Bagh, Delhi. No doubt, you can invest lakhs of Rupees to start aerated water factory.

Saline Drinks —These Lithia Water etc saline syrups are prepared in the same way as is done in preparation of soda water The difference is this that in soda water, bicarb is used and different kinds of mineral salts are used in it Carbon dioxide does the work of keeping the water safe

To prepare lithia water, 80 grams of Lithium Carbonate is dissolved in one gallon of water Lithia—water is used for gout In the same way to make potash water 66 potassium carbonate is sufficient in one gallon of water

The quantity of different salts is different in one gallon of water. To aerate such salts, the degree of gas should be somewhat low. It should not go higher than 110 lb pressure in any case A simple and small equipment is used for the preparation of above given mineral salts The bottle is placed in this equipment and dissolving constituents are put in the vessel that is meant for this purpose This equipment is

moved up and down so that all the constituents may be dissolved Then it is filled with carbonic acid gas. This revolving machine has undergone many changes and formerly it was used only for pilled and lever bottles, now it is also used for the Crown Cork bottles Because the Crown Cork bottle is on the increase Therefore more and more plants are being prepared for this purpose

Sweet Drinks —These sweet syrups like lemonade are prepared by aerating simple syrup and by mixing different kinds of essences in it.

Simple Syrup —It is a mixture of water, sugar and screen The method of preparing simple syrup is this that 3 lb of sugar may be boiled in 6½ pint water on the fire and later on, dissolve 22½ grain of soda bicarb in a glass Put 45 grain screen slowly and slowly and stir this mixture with a glass rod When it is dissolved thoroughly, put this solution in the boiling water In this way, one gallon syrup will become thick 23° Twaddle but in sweetness, this syrup would be 45°.

Now the simple syrup is ready Let it keep cool for a while When it becomes cool, filter it through a clean filter bag. Filter bag should be washed properly and rinsed before use

This syrup is sufficient in quantity *i e.*, 1½ ounces for a bottle of 10 ounces. It is used in this proportion in small and big bottles

At the time of preparing the syrup, all the liquid fluids should be measured in a measuring glass and all the dry things should be weighed

CITRIC ACID SOLUTION

Citric acid	..	..	..	3½ lb
Boiling water ...	...	...		2 quarts (5 lb)

The acid should be put into the boiling water Stir it so as to make it homogeneous Later on, it may be filtered through a clean filter bag and keep it in tight corked bottles. 2 ounces of this solution will be equal to one ounce of crystal citric

Crystal citric acid can also be used in a pure form but in making such a solution, it is very easy for the manufacturers

Many manufacturers prepare together a solution of citric acid and tartaric acid The prescription of this is

Citric acid	2 lb
Tartaric acid	1 lb.
Boiling water . .	52 ounces

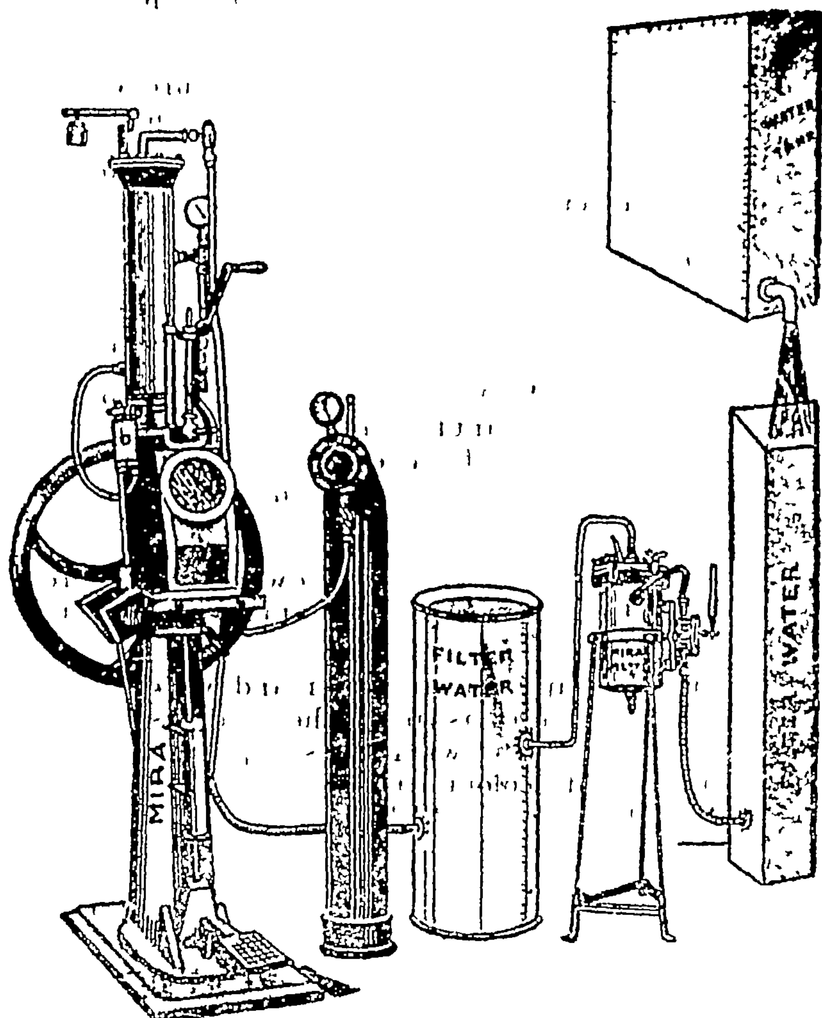
By preparing in the above method, they can be used by the same way Some manufacturers use tartaric acid only But there is a little difference in taste This taste is not liked by the amateurs Therefore any of the above two methods can be adopted

The modern man is advancing towards the progress and prosperity therefore leave the beaten track Test every thing and give it due respect

When simple syrup of sugar, screen and water is prepared, most of the manufacturers pour the acid solution in the syrup at the same time when the syrup is hot. When the syrup becomes cold, colour and essences are added The essences should be added in the hot syrup in no case They should be mixed when the syrup is quite cold At last add the perfumes and filter the mixture

The people who are working in this line, often add tartaric acid or crystals of citric acid in the hot syrup at a time according to the quantity required and it is poured in the same quantity in syrup, orange, lemonade rose, ice creams, banana etc Although acid solution should be added according to the fragrance and property of the fruit Such as in rose, ice cream etc , less quantity of acid should be added The quantity of acid should be great in lemon but greater than this in orange.

Aerated Water Machine
With
Automatic Filler & Crowner



This is an ideal machine for beginners in this trade Output approximately 20 to 30 Doz bottles per hour Price Rs 1700

FERMENTATION

Fermentation of the water when it becomes hot, its causes, remedies and results :—This is such a truth which the soda water manufacturers have to fight out When this fermentation of water occurs again, the manufacturer becomes tired of it and this fermentation becomes very troublesome for him Because its effect falls on his popularity, fame and good reputation

Fermentation —It is a process like that induced by leaven in dough, with effervescence, heat and change of properties, agitation, excitement Water gives bad smell at the time of fermentation It can give bad smell at any time without any expectation When at one time such bad smell comes into the water, it is impossible to restore it to its original position.

When in lemonade or such other syrup, impurities begin to float and somewhat of it will become visible and settle at the bottom of the bottles Then the smell of the essence loses its real charm and taste Some of the causes of fermentation of syrups are given below —

1 When the syrups are kept in a porous vessel of wood,

2 When the old syrups are used,

When the old syrups are mixed with the fresh syrups,

4. When the inferior quality of acids and colours is used,

5 When the soda water machine goes out of order or there is some defect in it,

6 When the bottles are not cleaned thoroughly and seem somewhat dirty

The above given defects apparently are ordinary but if a little carelessness is observed in the preparation of soda water, the dire and detrimental consequences will come out.

Remedies :—Prevention is better than cure The following precautions can give deliverance from the fermentation of aerated waters, if they should be kept in view and put into practice —

1 Every work in the factory should be neat and clean. Give great care to this essenial thing Before filling the bottles they should be thoroughly washed with a solution of potassium permanganate and then again washed with clean water. There should be no impurities or dirt in them

2 The whole syrup should be boiled on the fire for some time By doing so, there would be no effect of the impurities that are often found into the sugar All the germs that polute the water would be destroyed by the process of boiling. All the bottles should be filled with syrup of this kind

3 The syrup should not be kept for more than two days, especially in hot regions or summer season And it would be better that the same quantity of syrup should be prepared as is required to be consumed daily.

4 The old syrup should not be mixed with the fresh one It is better to throw it away so that there may be no possibility of its becoming contaminated Doing so will not be dear.

5 The syrup should not be stored into a porous wooden vessel There should be a lid over all vessels

6 The safety of the machine is also necessary The outer air should not be allowed to pass in wich the pumping gas. The gas should be entered into the aerated water very carefully. The fragrance puts a healthy influence over it It cannot be kept safe if air is allowed to enter The entering of air with the gas is not good in any case

7. Essence, colour or other chemicals should be of the superior quality Cheap essences, colours and chem cals is a defective and false economy and satisfactory chemicals is the backbone of this industry.

8 Cleanliness, precaution, and clean apparatus and chemicals is the way to the success of aerated water

Washing of Soda water bottles —You should bring such a good formula into practice for preparing the aerated waters and to make the water of high quality, you should take every kind of precaution But unless the bottles in which the aerated water is filled are clean, bright and cold, all your efforts will end in smoke

If your aerated water plant is of the modern kind and you are desirous of wealth, fame and respect, you are required to set up a machine of the modern type but cleanliness of bottles should also be kept in view

First of all the empty bottles should be washed with hot water. Later on, they should be washed with the water of potassium permanganate Then they should be passed through cool water so that they may be able to hold syrup

The benefit of putting the bottles into hot water is that the bottles that are filled with fruit juice, there remains some portion of juice, sticked to the sides of the bottle, and the hot water is more helpful in removing the dirt of juice Potassium permanganate kills the germs of all kinds It is very essential to use it in the washing of bottles and at last its poison is destroyed, when the bottle is washed with fresh water

To paste labels on the bottles —The labels pasted on the bottles are a great advertisement for the manufacturer To consume anything in the market, it is the high quality of publicity The labels should be attractive Their design and cutting should be of the modern type The paper of the labels should be of the finest quality One side of the paper should be attractive and other side should be such that can be able to catch the gum easily so that there may be no difficulty in pasting them.

Remedies :—Prevention is better than cure The following precautions can give deliverance from the fermentation of aerated waters, if they should be kept in view and put into practice —

1 Every work in the factory should be neat and clean. Give great care to this essenial thing Before filling the bottles they should be thoroughly washed with a solution of potassium permanganate and then again washed with clean water There should be no impurities or dirt in them

2 The whole syrup should be boiled on the fire for some time By doing so, there would be no effect of the impurities that are often found into the sugar All the germs that polute the water would be destroyed by the process of boiling. All the bottles should be filled with syrup of this kind

3 The syrup should not be kept for more than two days, especially in hot regions or summer season And it would be better that the same quantity of syrup should be prepared as is required to be consumed daily.

4 The old syrup should not be mixed with the fresh one It is better to throw it away so that there may be no possibility of its becoming contaminated Doing so will not be dear.

5 The syrup should not be stored into a porous wooden vessel There should be a lid over all vessels

6. The safety of the machine is also necessary The outer air should not be allowed to pass in with the pumping gas. The gas should be entered into the aerated water very carefully. The fragrance puts a healthy influence over it It cannot be kept safe if air is allowed to enter The entering of air with the gas is not good in any case

7. Essence, colour or other chemicals should be of the superior quality Cheap essences, colours and chem cals is a defective and false economy and satisfactory chemicals is the backbone of this industry

8 Cleanliness, precaution, and clean apparatus and chemicals is the way to the success of aerated water

Washing of Soda water bottles —You should bring such a good formula into practice for preparing the aerated waters and to make the water of high quality, you should take every kind of precaution But unless the bottles in which the aerated water is filled are clean, bright and cold, all your efforts will end in smoke

If your aerated water plant is of the modern kind and you are desirous of wealth, fame and respect, you are required to set up a machine of the modern type but cleanliness of bottles should also be kept in view

First of all the empty bottles should be washed with hot water Later on, they should be washed with the water of potassium permanganate Then they should be passed through cool water so that they may be able to hold syrup

The benefit of putting the bottles into hot water is that the bottles that are filled with fruit juice, there remains some portion of juice, sticked to the sides of the bottle, and the hot water is more helpful in removing the dirt of juice Potassium permanganate kills the germs of all kinds It is very essential to use it in the washing of bottles and at last its poison is destroyed, when the bottle is washed with fresh water

To paste labels on the bottles —The labels pasted on the bottles are a great advertisement for the manufacturer To consume anything in the market, it is the high quality of publicity The labels should be attractive Their design and cutting should be of the modern type The paper of the labels should be of the finest quality One side of the paper should be attractive and other side should be such that can be able to catch the gum easily so that there may be no difficulty in pasting them.

The gum that is used for pasting the labels should be of superior quality. The surface of the labels will not be pasted with the ugly type of gum and there will be a difference in their attractiveness

The cutting of the labels should also be proper so that the label pasting machine may do its work properly.

The manufacturers who are not doing their work on a high scale if you do their work of pasting the labels with the hand instead of a machine, it is the first and foremost thing that cleanliness should be observed Because beautiful labels are a great publicity

Syrup Room —Inside the soda water factory, syrup room is such a place, where aerated water is prepared free of all impurities and it is put into the bottles by adding colour and fragrance This place should be cold and there should be no insects, flies and dirt etc so that the preparation of syrup may be performed with facility.

The syrup room of such a factory that contains the following characteristics should be liked by every one, young and old alike It will add to the fame and reputation of the factory. Soda water factory wants much care and cleanliness In the preparation of syrup as many veesels as are required to prepare the syrup should be such that they may have no effect on the acid or syrup Most probably the vessels of iron or porcelain should be used.

Cistern, filter and all other fittings should be such as can be cleaned easily.

All the furniture of the syrup room should be brief, Unnecessary vessels and drains should not be here so that all the work should be done very carefully All things in the syrup room should be placed in order If it is possible, the preparation of syrup *i e*, the act of filtering, storing in cisterns all should be automatic so that keeping in view the principles of science and cleanliness, human hands may not be able to touch the syrup

The syrup may be changed automatically in the vessels of porcelain and glass

The syrup should be prepared in one way only for all kinds of aerated waters for different kinds, a change can be brought about into them The simple syrup as has been already explained is prepared with water, screen and sugar. Later on acid (Tartaricitric), fragrance (essence) colour preservative and foam heading are mixed and all these are mixed in a proper and correct quantity separately for each formula.

Simple syrup can be prepared with the act of hot and cold process If the hot process may be put into practice, the work cannot be completed only by heating the syrup but it is boiled in a proper and complete manner and if the syrup is required in the cold process, the syrup mixing or a closed mouth type should be put into practice

Screen should not be used more than half the sweetness of the syrup One ounce of screen is equal to 35 lb of screen When you use water instead of sugar, the volume of the water should be kept according to sugar and it should be decreased according to the volume of the acid so that the acidic matter of the screen should have its due share

When the syrup of sugar and screen is prepared, half quantity of sugar and half quantity of screen is used *i e*, if the quantity of screen is one ounce, the quantity of sugar should be 35 lb By increasing or decreasing this quantity, your aerated water should be below the standard water The standard of that water would be inferior That would be a death blow to the reputation of your firm

With one lb of sugar, 14 grains is the proper quantity For one lb of sugar, 10 ounces of water is necessary The quantity of acid should be $\frac{3}{4}$ of the complete syrup The screen sugar syrup of 45° TW is required to be prepared The average of 6 lb sugar and 5 pints of water is required instead of

Sugar 3 lb +42 grains of screen 550+water 5 pint+3×$\frac{1}{2}$ pint=water 5$\frac{1}{2}$ pint and $\frac{3}{4}$ of acid may be used

One lb. of citric acid or citric acid may be dissolved in one lb (16 ounces) of water. Filter it on cooling and 32 ounces of solution should be tightly fitted and closed into bottles. Thus the solution will remain in a proper and correct form.

The preparation of liquid colours :—Some manufacturers use dry colours and many use liquid colours For the sake of uniformity and standardization, the colours should be prepared in the liquid form By doing so, you will get rid of using dry colours and keeping the formula on a standard, on the other hand, your prepared liquid colours would be cheap

The dry colours, however, may be used subject to the regulations of health

Powder colour (dry colour)	1 ounce
Hot water	20 ounces
Liquid preservative	3 dram

The above given solution may be used ½ ounce in one gallon or 10 lbs of syrup This colour will not decay for a long time so that it may be filled in air-conditioned bottles

THE FORMULA OF DISSOLVING THE SCREEN

Screen 550	2 ounces
Soda bicarb	1 ounce
Distilled water	10 ounces

1 Soda-bicarb may be dissolved in one glass of water Later on, screen should be added slowly in this solution of soda bicarb and stir it so that there may not appear many bubbles when it is boiled When all is dissolved, filter this solution and make one lb of it.

One fluid ounce of this solut on is equal to 56 grains of screen 550 and is equal to 4 lbs of sugar in sweetness

2 Screen 550	2 ounces
Liquor Ammonia fort 880	¾ ounces
Distilled water	10 ounces

Make one lb of it by dissolving it It would be equal to the above mentioned formula

Acid Solution —There will be great ease, if the solution of acids is prepared and this solution is used double the

quantity of crystal Tatari or citric acid All the formulaes in the book, will be in the form of Tatari or the crystal of citric.

Preservative —Preservative is a chemical substance which is used for preserving perishable foodstuffs In the preparation of aerated waters, and to save them from decaying or keeping them in proper form, it is essential that the preservative may be used In different countries, different kinds of preservatives are used The most prevalent preservatives are sulphur dioxide and Benzoic acid It is used in different countries For instance, the aboye mentioned preservatives are used in Britain, Canada, South Africa, Australia, Newzealand, India and in other countries

Generally, the preservative solutions are bought in ready form If you want to prepare yourself, you can prepare in the following form

PRESERVATIVE WHICH WILL ALWAYS KEEP THE SYRUP FRESH FOR EVER.

1	Preservative	4 ounces
	Hot water	16 ounces

Make 20 ounces of this solution. In this solution will be 16 % of Benzoic acid in dissolved form To preserve one gallon of syrup ¼ ounces of solution will be used

Besides aerated waters, these preservatives are used in fruit waters and cord oil etc

2 Preservative powder . 3 ounces

Water . .. in that quantity that is sufficient for preparing 20 ounces of preservative.

In the solution 9% of sulphur dioxide will be in the dissolved form and to preserve one gallon of syrup, use ¼ ounce. The solution should be kept in a closely fitted corked bottle so that it may not be wasted. This solution is used in fruit squash, fruit wine, Cordale, Gingerale etc.

Foam :—Foam is a kind of small bubbles formed in liquid by agitation or fermentation As an artist, at the completion of the picture, gives it a finishing touch so that the hidden beauty of the picture may be visible. In the same way when the manufacturers of aerated waters, after making the simple syrup of sugar and screen in water and on cooling add colour, essence and preservative, then comes the turn of finishing touch and it is completed by foam According to the standard of every drink, the quantity of foam is added. It gives beauty and taste to the drink

The foam is imported from foreign countries It is available under different names manufactured by different factories. There is no such factory in our country that can prepare foam in comparison to the foreign foam

In our country, generally all the factories prepare foam from the foam of soap-nut. But the taste of this foam is bitter and it contains some poisonous matter that is harmful for the health The foreign foam is devoid of these two defects But its taste is somewhat tasteless and somewhat sour No poisonous matter is found in it The thing is very ordinary In our country, people know how to earn money by fair or foul means No one looks at the quality and purity of the thing If you want to prepare foam like the foreign foam, you should prepare it with the following formula —

Seponine . .	2 lbs
Glycerine	1 gallon
Distilled water ..	1 gallon

Two lbs of seponine may be mixed with one gallon of distilled water This ½ dram of foam will be sufficient for one gallon of syrup or one ounce will be sufficient for one ounce

Seponine is such a chemical, it is said, its raw material is not produced in India and it is the property of Britain

I do not want to go in full detail Only for your information I write a few lines here

Seponine is available in the white bright powder form It is not the property of the foreigners but it is 100% pure Indian material It is mixed in all tooth pastes and high quality shaving soaps and in other things where foam is required to be produced It is the main constituent of syrups and soda water Seponine is got from the fruit of a tree The foreigners claim that it is their property but the story runs like this that every year this fruit is exported from India to Britain in huge quantities There by the chemical process, this seponine is separated from this fruit It is visible on the dry skin in the shape of small grains It is visible when the dry skin of the fruit is broken. Nature has produced this tree at every place where there are trees of rubber By producing it there, Nature wants to take an important work from it. That work is this that when the hands of rubber milk extracting people become sticky. To remove this milk, a plenty of struggle is needed Under every tree of rubber, there are plants of seponine By removing the barks of these plants, they clean their hands The women of such regions wash their hair with this bark. Because the foam of the wood gives the work of some finest soap Foam is prepared with this bark The foam prepared from this wood is like this It contains no bitterness in it It is devoid of defects.

The regions where trees of rubber milk are produced, these plants grow there. The people living there have given them their own name in their own language This plant grows in Singhapore in plenty. Thousand shipful of it goes to Britain from there From Britain this cheap material is chemically prepared in the shape of foam and is sent in all parts of the world beautifully packed in bottles Then it commands great price

Thus, there is also present the raw material of fragrance and essence etc , in India. But the Government did not pay heed towards this

To test such things and understand them is beyond the the knowledge of an ordinary man The essence that you want to prepare better than the Britishers, it can be prepared in India very cheap. It requires some labour.

TABLE FOR THE PREPARATION OF SYRUPS

Water and sugar required for preparing one gallon of syrup whose consistency will be equal to different degrees

Degree of Consistency	Water	Sugar
15° Twd	141 ounces	one lb 15 ounces
15	139½ ounces	2 lb 1 ounce
17	138½ ,,	2 lb 3½ ,,
18	137 ,,	2 ,, 5½ ,,
19	135½ ,,	2 ,, 7½ ,,
20	134½ ,,	2 ,, 9¼ ,,
21	132½ ,,	2 , 12 ,,
22	131 ,,	2 ,, 14½ ,,
23	130 ,,	3 ,, 5½ ,,
24	128¾ ,,	3 ,, 2¼ ,,
25	127 ,,	3 ,, 5 ,,
26	125½ ,,	3 ,, 7 ,,
27	124¼ ,,	3 ,, 9¼ ,,
28	123 ,,	3 ,, 11½ ,,
29	121½ ,,	3 ,, 13¼ ,,
30	120 ,,	3 ,, 15¾ ,,
31	119 ,,	4 ,, 1 ,,
32	118 ,,	4 ,, 3¾ ,,
33	117 ,,	4 ,, 5½ ,,
34	115½ ,,	4 ,, 7¾ ,,
35	114 ,,	4 ,, 10 ,,
36	112½ ,,	4 ,, 12¼ ,,

Degree of Consistency	Water	Sugar
37	111 ,,	4 ,, 14½ ,,
38	116 ,,	5 ,, ½ ,,
39	180¾ ,,	5 ,, 2½ ,,
40	107¾ ,,	5 ,, 4 ,,
41	106¾ ,,	5 ,, 6 ,,
42	105½ ounce	5 lb 8 ounces.
43	104 ,,	5 ,, 10 ,,
44	103 ,,	5 ,, 12¼ ,,
45	101¾ ,,	5 ,, 14¼ ,,
46	100¾ ,,	6 ,, — ,,
47	99½ ,,	6 ,, 2 ,,
48	98½ ,,	5 ,, 4 ,,
49	97¼ ,,	6 ,, 6 ,,
50	96 ,,	6 ,, 8 ,,
51	94¾ ,,	6 ,, 10 ,,
52	93½ ,,	6 ,, 12 ,,
53	92¼ ,,	6 ,, 14½ ,,
54	91 ,,	7 ,, 5½ ,,
55	89½ ,,	7 ,, 2¾ ,,

Measurements —Fluid measurement is used for measuring the aerated water.

60 drops	...	...	1 dram
8 drams	...	...	1 ounce
16 ounces	...	...	1 lb.
20 ounces	...	...	1 Pint
8 Pints	...	...	1 gallon

———

MEASUREMENTS OF WEIGHTS

8 drams	1 ounce
16 ounces . ..	1 lb
14 lbs	1 stone
28 lbs	¼ hundredweight
112 lbs . .	1 "
20 hundredweights	1 ton

---

2 pints . ..	1 quarter
4 quarters . ..	1 gallon
9 gallons	1 firkin
2 firkins	1 kalderkson
2 kalderksons ...	1 barrel

One gallon	=160 fluid ounces
	=4½ litres (4·53)
	=8 pints
	=5·16 cubic feet
	=10 lb (water)
	=70,000 grains
	=277 cubic inch
One cubic foot	=1000 fluid ounces
	=6¼ gallons (6 2321)
	=62½ lbs.
	=28·3 litres
One pint	=20 fluid ounces
	=160 grams
One ounce	=1 ounce (weight of water)
	=8 drams
	=28 cubic cent
	=437 5 grains

One litre	=1¾ pint
	=5 22 gallon
	=35 fluid ounces

AMERICAN ICE CREAM SODA

1	Simple . . .	1 gallon
	Essence (American ice cream Soda) (Soluble)	1 ounce
	Foam .. .	1 ounce
	Acid	1 ounce
	Preservative	½ ounce

2	Tartaric or citric acid	½ ounce
	Essence (American Ice cream Soda)	1½ ounces
	Foam liquid ..	½ ounce
	Preservative	1 ounce
	Simple Syrup	1 gallon

BANANA SQUASH

Simple Syrup	1 gallon
Essence banana Squash ...	1 ounce
Acid .. .	1 ounce
Banana (yellow or green colour)	¼ ounce
Foam	1 ounce
Preservative	half ounce

CHAMPION CIDERATE

(Fermented drink from apple-juice)

Simple Syrup	1 gallon
Essence Champion Ciderate ... (Soluble)	half ounce
Acid	Two ounces
Foam	half ounce
Golden Ginger oil colour ... (as required)	From ½ ounce to one ounce
Preservatives	half ounce

CHERRY CIDER

Simple Syrup	1 gallon
Essence cherry cider	1½ ounces
Acid	2½ ounces
Ruby red colour	½ ounce
Foam	½ ounce
Preservative	½ ounce

CIDERATE

Simple Syrup	1 gallon
Essence Ciderate...	from ½ to 1 ounce
Acid	2 ounces
Foam	½ ounce
Preservative	½ ounce
Charred Sugar	As required for giving the colour

DRY GINGER ALE

Simple Syrup	one gallon
Dry ginger ale extract	1½ ounces

Golden ginger ale colour	...	½ ounce
Preservative	...	½ ounce
Acid ...	.. ..	2½ ounces

GINGER ALE

1	Simple Syrup ..	.. ..	one gallon
	Ginger ale extract	... .	1½ ounces
	Acid	. ...	2 ounces
	Golden ginger ale colour	...	½ ounce
	Preservative	.. . ...	½ ounce

GINGER ALE

2	Simple Syrup	...	1 gallon
	Essence ginger ale bell fast	—	1½ ounces
	Essence Caspcaim	... ...	½ ounce
	Ginger colour	. .	one ounce
	Acid citric	. ...	Two ounces
	Foam Heading	. ...	¼ ounce
	Liquid preservative	.. ...	half ounce

GINGERADE

Simple Syrup ...	.. ...	one gallon
Essence stone ginger beer	...	one ounce
Essence Jenica ginger	... ..	¼ ounce
Essence Capecum	... ...	One dram
Foam	... ...	½ dram
Preservative	... ...	½ dram
Lemon Colour ..	. ..	As required

GINGER BEER

Simple Syrup ..	... ...	1 gallon

Soluble Essence ginger beer ...	From ¾ ounce to one ounce
Acid	2 ounces
Foam	¼ ounce
Preservative . ..	½ ounce

AERATED GRAPE FRUIT CLOUDY

Simple Syrup	One gallon
Soluble Essence of Ice cream ginger	Two ounces
Foam —	One ounce
Acid . .	One ounce
Preservative	half ounce

ICE CREAM LEMON

Simple Syrup	One gallon
Soluble Syrup Ice cream Lemon	Two ounces
Foam	One ounce
Acid	One ounce
Yellow Colour	half ounce
Preservative	half ounce

ICE CREAM RASPBERRY

Simple Syrup	One gallon
Soluble Essence Ice cream Raspberry ..	Two ounces
Raspberry colour	half ounce
Acid	One ounce
Foam	One ounce
Preservative	half ounce

FRUIT COLA

Simple Syrup .	One gallon
Soluble Essence fruit Cola .	1½ ounces
Acid . ..	Two ounces
Cola Colour . .	half ounce
Foam	" "
Preservative . .	" "

COLA CHAMPION

Simple Syrup ..	One gallon
Soluble Essence Cola Champion .	1½ ounces
Acid .. .	1½ ounces
Cola colour	¼ ounce
Foam .	½ ounce
Preservative . .	⅛ ounce

LEMONADE

Matchless syrup of all aerated sweet waters

1	Simple Syrup ...	One gallon
	Citric Acid	2½ ounces
	Essence lemon ..	1½ ounce
	Silicate acid . .	¼ ounce

Citric acid and silicate acid should be dissolved in a glass vessel. All these constituents should be mixed in the syrup when it has become cold. If you want to add essence or colour, it should be mixed at the time of preparing the bottles. It should not be kept by pouring it into the syrup You should know that lemon is a pale yellow oval acid juiced fruit used for flavouring and for making the beverage lemonade.

2	Simple Syrup	One gallon
	Citric acid	Two ounces
	Essence Lemon	1½ ounces

	Colour Lemon (if required to be added)			Two ounces
	Foam	...	...	... ¼ ounce
	Preservative ...	.	...	¼ ounce
3	Simple Syrup .	...	..	One gallon
	Critric acid . .	...	. .	Two ounces
	Essence lemon	. .	.	One ounce
	Oil Lemon ...	...	.	½ ounce
	Oil orange ...	...	...	¼ ounce
	Essence Orange	...	.	One ounce
	Essence Rose ..	.		half dram

INFERIOR QUALITY

4.	Sugar . .	—	...	6 lb
	Citric acid .	..	..	One ounce
	Oil lemon	. .	.	from ¼ to one ounce
	Boiling water ...	...	. .	One gallon

Lemon oil should be mixed with rectified spirit and then added with sugar slowly. After some time pour boiling water over sugar. When the water is hot, add acid also.

5.	Simple Syrup .		.	One gallon
	Essence Lemon (Superior quality)			one ounce
	Acid		.	2½ ounces
	Foam .	.	. .	½ ounce
	Preservative .	.		½ ounce
	Yellow colour (if required to be added)			½ ounce

If you want to prepare lemonade of inferior quality, use half ounce of essence.

6	Simple Syrup ...	. .	.	One gallon
	Soluble extract lemon grain			½ oun e

Soluble essence lemon (Superior quality)	½ ounce
Acid .	2⅛ ounces
Foam	½ ounce
Prerevative .	½ ounce
Colour (if required to be added)	
Yellow colour ...	½ ounce

LEMON CHAMPION

Simple Syrup .	One gallon
Soluble essence lemon champion	1½ ounces
Acid .	3 ounces
Foam . .	¼ ounce
Yellow colour — .	¼ ounces
Preservative — .	¼ ounce

LEMON SQUASH

1	Simple Syrup	One gallon
	Soluble essence lemon squash (clear)	1½ ounces
	Acid	3½ ounces
	Yellow colour .. .	½ ounce
	Foam	½ ounce
	Preservative	½ ounce
2	Simple Syrup ..	One gallon
	Essence lemon squash (bright)	Two ounces
	Citric acid	2½ ounces
	Liquid lemon colour .. —	¼ ounce
	Liquid preservative . .	¼ ounce
	Liquid Foam	¼ ounce

LEMON CRUSH

Simple Syrup .. .	One gallon
Essence Crush . .	One ounce
Acid .. .	Two ounces
Foam .	One onnce
Yellow colour .	half ounce
Preservative	half ounce

If you want to make the syrup into a greater cloudy form add from ½ ounce to ounce of silver mist.

LIME JUICE SODA

1.	Simple Syrup . .	One gallon
	Essence lime juice soda .	1½ onuce
	Lime juice soda colour .	½ ounce
	Citric .. .	2½ ounce
	Preservative .	½ ounce
	Foam .	¼ ounce
2	Simple Syrup . .	One gallon
	Soluble essence lime juice and soda one ounce	
	Acid ...	2½ ounces
	Colour lime juice and soda	½ ounce
	Foam . .	½ ounce
	Preservative .	½ ounce

LIME CRUSH

Simple Syrup ...	One gallon
Essence of lime crush .	One ounce
Acid	Two ounces
Lime juice soda colour .	½ ounce
Foam	one ounce
Preservative ..	half ounce

If you want to make the above-mentioned syrup more cloudy, add from half ounce to one ounce of silver mist

ORANGE ADE

1.	Simple Syrup	one gallon
	Essence orange sweet	Two ounces
	Orange colour . .	half ounce
	Citric acid . .	Two ounces
	Liquid foam ..	¼ ounce
	Liquid preservative ...	half ounce

SUPERIOR QUALITY

2.	Simple syrup . .	One gallon
	Triple distilled soluble essence	
	sweet orange	¾ ounce
	,, ,, ,, butter orange	,, ,,
	Acid	2½ ounces
	Orange colour ..	one ounce
	Foam . . .	½ ounce
	Preservative .	,, ,,
3	Simple syrup . . .	One gallon
	Soluble Essence Orange ade	From one ounce to 1½ ounce
	Acid	Two ounces
	Orange colour . . .	One Ounce
	Foam	half ounce
	Preservative	half ounce

ORANGE CHAMPION

Simple syrup ...	One gallon
Soluble Essence Orange Champion	Two ounces

Acid	. ..	Three ounces
Orange colour	.	Half ounces
Foam	.. .	Half ounce
Preservative	..	Half ounce

Milk Soda

Now-a-days, milk rose, ice cream milk etc are in vogue in aerated waters And milk is also used in all these aerated water Most manufacturers when aerate milk, the water becomes rancid within twelve hours and cannot serve the purpose of drinking Therefore the manufacturer has to bear a great loss on account of this negligence Some manufacturers who want to sell their milk after aerating cannot do this Because to keep the milk safe from Bacteria is beyond their power The most important question is how to preserve the milk.

Different changes come into the shape and taste of the milk, such as the milk becomes rancid, sour and solidified. It gives a bad smell. Sometimes it becomes thin etc It acquires such shapes on account of fermentation Therefore before aerating the milk, preserve it in a very good manner. It should be preserved in such a way that there should be no change in its characteristics The most important thing about this matter is that milk should be kept clear from its excretion up to its aerating. The whole act should be neat and clean The vessels in which the milk is milked from the udders of cow and buffalo should be neat and clean Do not keep the milk in the brass utensils because some part of this metal dissolves into the milk It is harmful from the health point of view It also puts a bad effect on the characteristic of the milk The best method of preserving the milk is that it should be stored into tightly corked bottles These bottles have been already cleaned in a very good manner Cork these bottles and pass them through boiling water Later on, the bottles should be placed on a cool place By doing so, the quantity of oxygen present in the closely fitted bottles is observed by the milk By doing this process there would be no change in the property of the milk for a

long time. If now in this milk some of quantity of carbonate of magnesia or carbonate of potash is mixed in the bottles and is corked later on, the milk does not become sour or rancid for a long time

If so stored milk is used in aerated waters, there is no danger of its becoming sour or rancid for a long time But the process of aerated waters should also be neat and clean as done at the time of storing the milk In this milk some grains of carbonate or bicarbonate of soda should be added Ten or twelve grains of bicarbonate of soda are sufficient for one pint of milk The use of citric acid or tartaric acid containing syrups is prohibited with this milk Purified crystals of sugar should be used but at the time of aerating the milk, filler should be washed with soda bicarb All the vessels in which milk is poured should be washed with soda bicarb and these should be of porcelain or glass If there will be no impurities in the vessels or material and the soda water bottles will be washed properly there is no possibility of becoming the milk rancid or sour until the outer air enters into the bottle on account of leakage of the cork. One seer of milk is sufficient for one dozen bottles. The essence you want to mix should be mixed Then aerate it at the soda water machine by giving a little of colour Milk rose or milk ice cream soda is ready. It will not lose its real taste for a long time

FORMULA FOR PREPARING ONE DOZEN OF MILK SODA

Sugar crystal ...	12 ounces
Screen 550	12 grains
Soda bicarb (for dissolving screen)	6 grains
Milk (Stored by the above method)	2 lbs
Soda bicarb (For milk)	180 grains
Essence (as required)	One dram
Colour . .	As required
Foam	half ounce

Explanation of Syrups — All the syrups are prepared by mixing suitable quantity of sugar and water Such syrups are mostly liked much in summer season Some syrups are used as a medicine They prove much useful even in chronic diseases.

The syrups are real and imitating also. This shows that there is a great difference between these two kinds. The real syrups are prepared from real constituents and they give a regular work and prove useful Unreal syrups do not keep such properties They are prepared from unreal things They have a real benefit They only contain some taste. They are apparently beautiful.

Constituents of real syrup — These syrups contain all the real constituents such as water, sugar, chemical, colour and other constituents, fruits, flours, leaves and the roots and wild trees and other herbs etc.

By the above mentioned process, with different constituents, syrups are prepared They are prepared according to taste of the people and their liking keeping in view the season This is also taken into consideration that the things that are to be used for the preparation of the syrup should be available abundantly so that no difficulty may be confronted, if it may be prepared in huge quantities

Generally, such syrups are prepared from fruits. For this purpose the selection of fruits needs much care Though all the fruits can be used for preparing the syrups but syrups prepared from grapes, oranges, bananas, pomegranates and mangoes are liked by every one

The fruits of high quality should be used for the preparation of syrups Rotten, bad smelling and worthless fruits should not be used in any case The fruits should not be unripe The fresh and ripe fruits should be used in the preparation of syrups When you get fresh fruits, they should not be kept for a long time Syrups should be prepared from them at once Over-ripe and under-ripe fruits cannot prepare the syrups because we cannot get the juice from the unripe fruits and it does not give the proper taste Over-ripe fruits become the cause of fermentation of the fruit.

In the other kind of natural and real syrups, flowers, leaves and herbs of wild plants are used, such as if you want to prepare syrup of rose and jessamine, you will have to use the flowers of rose and jessamine. The syrup of rose is liked by every one and in addition to its popularity, it is health giving The flowers should also be taken in fresh and blossomed form. In some cases dried flowers are also used and their petals also contain fragrance in the dried form.

The syrups prepared from roots, herbs and other spices are used by the patients of different complicated and chronic diseases They are not only delicious but also contain in them a treasure house of health. At the time of preparing such syrups, it is essential to keep in view that the constituents should be fresh

All the Hakims and Vaidyas remove the diseases of many patients with the aid of these syrups It is a syrup as well as a medicine, therefore patients can drink is very easily and tastefully They feel no hesitation in drinking such medicines. Before the introduction of Allopathy in our country, these syrups were the main part of our indigenous pathy The main advantage of their use is this that they do not give rise to other diseases after curing one disease, unlike the English medicines. It is the property of the English medicine that they cure the patient from one disease and put him into another disease. For curing that again we have to seek the shelter of Doctors

Use of Water in Syrups—It is water nearly saturated with sugar This is also combined with flavouring as beverage or with drugs as medicine. The water that is supplied to us by the nature, if kept for long time, it gives rise to many kinds of germs. Fermentation is produced which gives rise to bacteria and the syrup is contaminated As far as possible, use rain water or distilled water for the preparation of syrups The water prepared from such waters shall not be contaminated and its real taste will remain as it is for ever.

Sugar.—Syrup is a condensed sugarcane juice, part of this remaining uncrystallized at various stages of refining, molasses, treacle The sugar that is used in syrups should be

white and crystallised There should be no colour in it. The sugar producing companies give it the real colour with the help of chemicals For the preparation of syrups, pure, white and crystallized sugar may be used. It is better that sugar-candy may be used for the preparation of high quality sugar was done in the olden times At that time, sugar candy was available in the market everywhere At the time of preparing the syrup from sugar, all kinds of impurities should be removed Any kind of dirt and dust should not be allowed to come near it In most syrups, Glucose is used in place of sugar and to increase its sweetness, screen is also added Screen is a chemical prepared from coal tar It has no other connection with sugar It should not be used for eating purposes but is a drug in little quantities It comes out of our body in the same form as we use it It gives no energy to the body Sweetness is produced from it for the industrial purposes If it gives no advantage, there is no harm from it It is used for commercial purpose It gives great progress to the industry Because sugar can be bought at high rates but screen can be bought cheaper than sugar It contains 550 times more sweetness than the sweetness of sugar. *If we mix one tola of screen with one thousand tolas of* glucose, it can give us the taste of whole sugar prepared from sugarcane. If for the manufacture of syrups, sugar is easily available, screen should not be used. Sugar when digested gives energy to the human body and strengthens the tissues and muscles The real thing is always real.

Use of chemicals in Syrup :—Chemicals are mostly used in artificial syrups. These are also used in minor quantities in the syrups prepared from fruits and flowers The syrups though prepared from fruits and flowers or in imitative form should always be preserved, The use of essences in the syrups is as essential as the use of colours for adorning them The name of Tartaric or citric acid L D Hydro ether is worth mentioning. Some chemicals are used alone for giving flavour and fragrance to the syrup. Some fragrances are prepared by the combination of some chemicals These essences are prepared by mixing the chemical in fixed proportions. In this way, different kinds of fragrance are prepared.

For the manufacturing of syrups, Sulphur dixide Benzoic acid, Sodium Benzoite, Sodium Sulphite, Sodium Meta bisulphite, sulphuric acid and rectified spirit etc. are used as preservative By the use of any one preservative in suitable quantity in syrup can give long standing to the syrup i e syrup will not contaminate or ferment, if any of the preservative is mixed with it and sugar does not acquire its solid shape There is no difference in the taste of the syrup and it remains always fresh

When the syrups are prepared, give them colours that are available in the market in ready form so that they may become attractive along with their other virtues The colours should be attractive according to the natural colour of the fruit.

Simple Syrup —Simple syrup can be prepared by the cold process. The cold process, is easier than the hot process But the syrup prepared by the hot process remains in its real form for a long time To work on sound footing, the syrup prepared by hot process will be best

By preparing the syrup by the cold process, sugar is dissolved in water in a very good manner so as to make water and sugar homogeneous It acquires the shape of liquid By the hot process the sugar is boiled in water to dissolve it. It is stirred continuously so that sugar may not stick at the bottom and charred sugar may not give its colour to the syrup

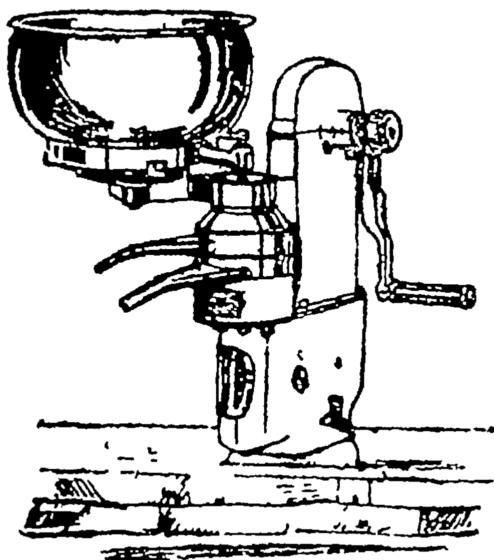
In the simple syrup, sugar and water are the main constituents The syrup is prepared from these Water should be clean and filtered Sugar should be white and crystallized. If sugar is somewhat coloured or dirty, it can be purified with the addition of milk When sugar is dissolved in water, milk mixed water is slowly added to it so as to remove its dust and dirt.

Boil ten seers of sugar in two seers of water Pour fresh milk in water and pour it on all sides of the syrup and keep the syrup on the fire When dirt comes at the surface of the syrup in the shape of foam, remove it with the aid of a spoon so that the whole dirt may be removed and the syrup will be clear

Cream, Butter and Ghee Industry

Now-a-days, pure ghee is not available. It can be bought but its purity cannot be acertained. Therefore every person tries his level best to get the cream extracted from the milk in his presence He wants to get ghee prepared from this cream To satisfy the customers, in big or small cities (cream separator or creamer) machines are set up in dairy shops. With the aid of this creamer the cream is separated from the milk before the eyes of the customers Ghee is prepared from this cream and sold in the hands of the customers at reasonable rates.

This industry leaves reasonable profit Creamer or cream separator machine is made in foreign countries

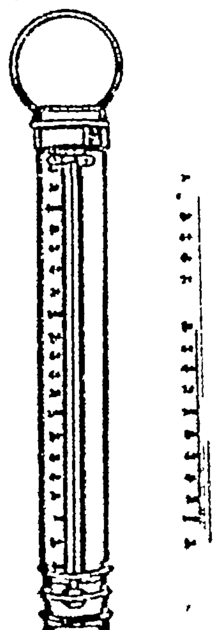


The working capacity of this machine is different The smallest machine has the capacity of 10 gallons 10 seers of milk can be poured into it at a time The machine can separate cream out of it within 15 or 20 minutes. Bigger machine than this is 15 gallons There is also a machine of 30 gallons The price of the 10 gallon capacity machine is Rs 450

The price of the 15 gallon machine is from Rs. 550 to Rs 600 The price of the 30 gallon capacity machine is from Rs 850 to Rs 1000 The method of working on this machine is very simple The milk is poured at the place fixed for this purpose By revolving the handle of machine, milk comes out of the machine on one side One the other side cream comes out The industry of this cream is also on the

increase Many people buy cream only and make ghee out of this cream at their home Many people buy ghee from the dairy shop In short, the people dealing in dairy business earn a lot of money from all sides He has only to set up one machine He can sell cream as well as ghee This cream, in other words, is called butter 10 Tolas of cream is separated from one seer of milk, 5 tolas of ghee is separated from 10 Tolas of cream The people who do the dairy business call the milk from which cream has been separated "Separata" It is used in three forms One is that this is sold in its original shape i e, milk Secondly, they sell by giving it the curd shape or condensed milk The third form of this milk is that it is dehydrated by evaporation It is called milk-powder This milk-powder is prepared from 'Separata' and is very useful for babies and old men who cannot digest wholesome food. They sell it at cheaper rates They get full advantage out of it This industry can run throughout the year. If you want to get full information about it, you should write a letter to the manager Cottage Industry, New market, Anguri Bagh, (K-8) P B. No. 1262, Delhi 6.

SUGAR METER



MILK TESTING MACHINE

With ball bearing four different tests Price Rs 205

Formula for Milk testing purpose

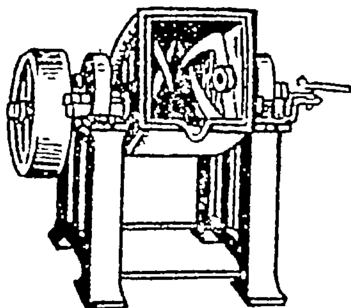
1. Keep butrometer in upright condition Put slowly 10 c c Sulphuric acid of 18 40 strength in butrometer Add in the same tube 11 C C fresh milk. Add 1 C C. Amyl Alcohol. Mix and put it in testing machine and rotate with speed, the result is the test

Biscuit Industry

No doubt, biscuit is neither the food of Indians nor the food of their ancestors but Invention is the mother of necessity English Nation came into India and took its civilization with it We learnt from them the hospitability with biscuits. Now biscuits have got a great place among the nations of the world They are served before the guests at the time of breakfast and sometimes at dinners also The biscuits are prepared for the sucklings as well as for the old men

Every person likes to eat it with relish Its demand is so heavy that we have to import plants from foreign companies that are electrically automatic driven Lakhs of tons of biscuits are manufactured by the aid of this machinery The biscuits are so dear that a packet of 2 chhataks costs about from eight annas, to Rs 3 The cost price of this packet is hardly 2 annas to 4 annas This industry is very profitable and simple. The packing should be beautiful The convassing power should be forceful Publicity should be well-planned In this case, you can earn a lot of money by this industry As far as my knowledge permits, you should start this industry on a small scale When your knowledge is vast in regard to this line, you can increase it according to your own choice Further, we have to explain all the methods to you by which every kind of pastry and biscuits are prepared *i e*, How much of a special kind of material is put in a special quality of biscuits How that material is mixed ? First of all you should gain knowledge about two or three machines

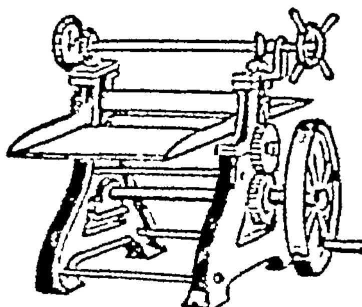
Mixing Machines —All the things, i e, flour, starch, corn flour, Soda, Sugar, Milk, Glucose and water etc are put into this machine according to their fixed quantity Its lid is covered from above. If the machine is hand driven, all the mixture put into the machine acquires the shape of kneaded flour by revolving the handle of the machine for fifteen minutes



If the machine is electrically driven, the mixture will be ready within 10 minutes This fact is noteworthy that the mixture is prepared properly only with the aid of the machine for preparing the biscuits If you will try to mix the things with hands, you won't be able to mix them properly The smoothness will not be the same as is seen on the biscuits manufactured by big and renowned companies

One hundred lb of material can be put in this machine for mixing at a time The price of the hand driven machine is Rs 1050 The price of the electrically driven machine is Rs 1500

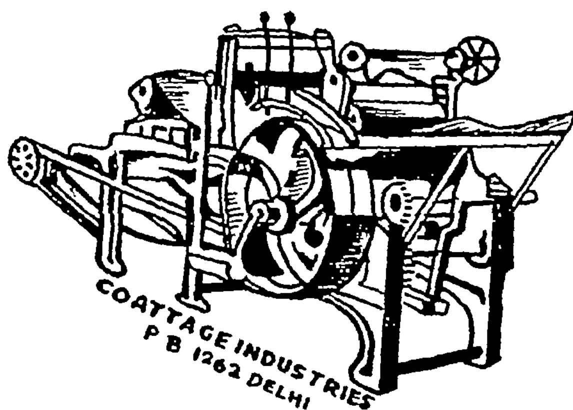
Biscuit Rolling Machine :—The material that is prepared in the mixing machine like kneaded flour, is taken out of it, when kneaded, and is put into the back portion of the Rolling Machine for rolling There is fixed at both sides "Adjustment" above both the rollers It means that it is used for adjusting the thickness of the biscuit The adjustments are fixed according to the thickness



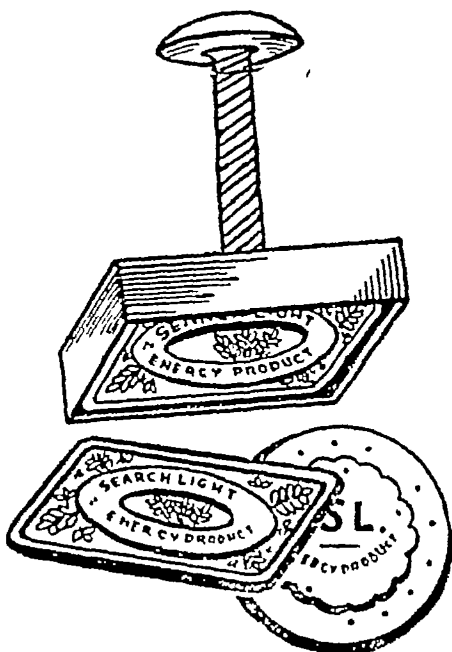
of the biscuit The mixture that is put at the back portion of the machine comes forward when the rollers are revolved. This work is done by the machine automatically. There is no need of touching the material by the hand One hundred lb. of mixture is rolled within few minutes Machine rolls the mixture evenly and smoothly in one size only We can attain such a uniformity and cleanliness on the biscuit with the aid of hand Therefore this machine is also important for this industry Its size is 23"×6". The price of the hand driven machine is Rs 750. The price of electrically driven machine is Rs 985 Now the sheets of your biscuits are ready. Now they are required to be cut in the size of the biscuit The cutting can be done by two ways One biscuit cutting machine is such that contains the dies on which the name of the company is engraved

Biscuit Cutting Machine

This machine has been specially designed for a moderate output, and is perfectly efficient in detail It is fitted with usual gauging rollers, the cross head for carrying the necessary cutters and the gear for separating the scrap from the cut biscuits, together with panning mechanism for automatically depositing the biscuits on the baking trays. This is an intermittent machine size 18"x6" and has a capacity of about 50 cuts per minute. The price of this machine is Rs 4100.



The size of the machine is 18"×6" This does the work of cutting and stamping the biscuits within few minutes. The price of the hand driven machine is Rs 3500 The price of electrically driven machine is Rs 4100 If you want to start the industry on a small scale, you can take work from a Biscuit cutting and printing cutter The figure of the biscuit cutter is before you 2¼" long and 1¼" broad biscuit is prepared with it The price of this simple cutter is Rs 25 The size of the design making biscuit cutter Rs 38.



The machine and cutter can be had from the Cottage industry, P B 1262, (k-8) Angoori Bagh, New Market, Delhi-6.

1 Methods of Making Biscuits of Different Kinds

Constituents and method of preparation —Starch one seer, Sugar 6 chhataks, Pure ghee 6 chhataks, Soda bicarb one spoon

Knead all the constituents with milk, and spread it with a roller and cut the biscuits of different samples with the aid of moulds Put all these biscuits on the tin plates and spread them Cook the biscuits into a bakery oven. The biscuits will be ready after a short while.

2 Simple Biscuit

Constituents and Method of preparation —

Starch . .. One lb

Yellow part of an egg	...	One
Milk ...	...	as required

Dissolve the yellow part of the egg in milk, knead it in milk and make yeast of it so that we may be able to make bread out of it. Then roll it into the shape of a bread Cut the biscuit with the aid of a mould Then prick it with the aid of a fork and make holes into it. The process of cooking depends upon the holes of the biscuits. Then cook these biscuits on light heat of a furnace The starch of the biscuits should neither be too thick nor too thin The biscuits will be heavy and beautiful If the kneaded material will be thick, the corners of the biscuits will crack.

3. Simple Biscuit

Constituents and Method of Preparation —

Starch	..	½ Seer
Carbonate of Ammonia	.	Three drams
White Sugar	.	2 chhataks
Arrowroot ..	.	½ chhatak
Butter		2 chhataks
Egg ..	...	One

All the things should be mixed Then ferment it with milk and mix it thoroughly Roll it thin or thick according to your own choice Then make round or square biscuits according to your own choice and cook it into the furnace

4. Simple Biscuits

Constituents and Methods of Preparation :—

Suji .	..	One seer
Pure Ghee ...	...	4 Chhataks

Crystalline sugar (finely powdered)	.	13 Tolas
Fine Yeast	... ..	4 Tolas

Knead the suji in flour in a very good manner Mix sugar, ghee and yeast in a very good manner Cut the biscuits with the aid of mould and cook them in a very good manner.

5. Tasteless Biscuits

Constituents and method of Preparation —

Starch	...	...	Half seer
Fresh Butter	.	...	2 ounces
Fresh milk	...	.	Half Pint

First of all, ferment milk, butter and starch. Make 3/4" thick board and put moulds on it and cut the biscuits And then roll them with a roller Then make holes in them. Then spread dry starch on the tin plates and spread biscuits on them The hole making side should be downwards So cook them on a light heat.

6 Butter Biscuits

Constituents and methods of Preparation :—

Starch	..	.	Two lbs.
Butter	.	.	¼ lb.
Yeast	.	..	Three spoons

7 Biscuits of Eggs

Constituents and Methods of Preparation :—

Starch	...	..	6 chhataks
Butter	..	...	2 chhataks

Sugar (Powdered)	.	3 chhataks
Carbonate of Soda	.	3 mashas
Eggs	.	Two
Vinegar		As required

First of all, mix butter and starch Then add all the other things and knead it with vinegar Cut them with the aid of moulds Spread them on the tin plates and cook them in the furnace

Water or milk	...	as required

Knead all the constituents in a very good manner First of all, butter should be added with starch Then mix yeast, water or milk with it in a very good manner Later on, keep it aside for half an hour so that it may be fermented Keep it in view that fermentation may not be up to the degree of sourness Then roll it and cut the biscuits with the aid of moulds. Then prick it with forks and put them on plates

8 Biscuits of Eggs

Constituents and Method of Preparation —

Starch	..	..	Half seer
Sugar Candy			6 chhataks
Kernel of Almond	..		4 chhataks
Butter	.	..	Two chhataks
Jam of Orange	.	. .	One chhatak
Egg	..		Two
Jaiphal	.		Two mashas
Soda			Small Quantity,

All should be mixed thoroughly Then paste whiteness of the egg on it.

9 Biscuits of Arrowroot

Constituents and Method of Preparation :—

Starch		.	4 chhataks
Arrowroot	..	...	4 chhataks
Butter			2 chhataks
Eggs	..	.	Four
Baking powder		..	Four Mashas
Salt	..	.	One masha

First of all, mix butter, starch and arrowroot and then mix all the remaining things and knead it Cut them with the aid of moulds and place them into the tin plates Cook them into the furnace

10 Sweet Biscuits of Fine quality

Constituents and Method of Preparation .—

Starch		.	4 seers
Sugar		.	2 seers
Butter	..	.	2 seers

All the three things should be mixed thoroughly Roll them and cut them into the shape of Biscuits. Then put them in the tin plates and cook them on the low temperature A fine quality of biscuits will be made. Keep this in view that salted butter may not be added to it.

But white quality of pure butter should be added Do not use margarine which is a kind of substances made in immitation of butter.

11. Sweet Biscuits of fine quality

Constituents and Method of Preparation :—

Starch		...	1¼ seers
Sugar	..	...	2 chhataks

Salt		...	½ chhataks
Butter	..	.	One seer
Egg	.	...	Two

First mix sugar and salt in a very good manner. Then add butter into it Then take starch, and mix it with three things When all are mixed in a very good manner, roll it

After it, cut the biscuits with the aid of moulds and make holes with a fork Then take a little sugar and eggs in a separate plate aud rub it Mix a little quantity of milk with it When all the three things are mixed, paste them on the upper side of the biscuit. Then put the biscuits on the plate Cook them in the furnace Frisk quality of Biscuits will be prepared

If the quantity of starch and butter is more than the above given, then salt should be added ½ chhatak after every seer and all the remaining things are put into the same quantity

12. Sweet Biscuits (fine quality)

Constituents and Method of Preparation .—

Starch	...	.	One seer
Sugar	...	.	6 chhataks
Pure ghee	...	.	6 chhataks
Soda Carbonate	..		as required
Milk	...	...	as required

First sugar and ghee should be mixed and dissolved in a very good manner Later on, Carbonate of Soda should be added and dissolved After it, starch and milk should be added and kneaded Cut them with the aid of moulds and spread them in tin plates

13 Sweet Biscuits (Fine quality)

Constituents and Method of Preparation :—

Starch		.	Two seers
Butter			Half seer
Sugar		.	Half seer
Salt	.	.	1½ Tolas
Milk	..	..	As required

First of all, ghee and sugar should be added. Then add salt Later on, starch and milk should be added Knead it Then cut the biscuits with the aid of moulds Cook them in the furnace after putting them on plates

14 Sweet Biscuits (Fine quality)

Constituents and Method of Preparation —

Starch	..	.	35 seers
Butter		.	2½ seers
Sugar		..	One seer
Cream of Tarter	...	.	6 chhataks
Soda bicarb	..	.	3½ chhataks
Tartaric acid	..	..	1¼ Tolas
Salt		.	four chhataks
Milk	..	.	17½ seers

Mix all the things in starch and knead them Then spread and cut them with the aid of moulds and cook them into the furnace

15 Constituents and Method of Preparation .—

Fine starch	.	..	Two lbs
Butter	.	..	Three ounces
Sugar	..	.	Four ounces

First of all, butter should be added to starch Knead it after adding milk with it Later on, ½" thick boards should

be made Cut the biscuits with the aid of moulds Cook them in the furnace.

16 Sweet Biscuits (Fine quality)

Starch	...	...	Two lbs
Carbonate of Ammonia	..	..	Two drams
Sugar (powdered form)	..	..	Four ounces
Butter	...	.	Four ounces
Egg	...	...	One

All the things should be mixed and fermented. Cut them with the aid of moulds Cook the biscuits in the furnace.

17. Butter Biscuit

Butter Biscuit (Fine quality)

Constituents and Method of Preparation .—

Starch		..	One seer
Sugar	...		Four chhataks
Butter	.		Two chhataks
Carbonate of Soda	..	...	3 mashas
Ginger (powdered)			One Tola
Milk	.		As required

All the things should be kneaded in milk Cut the biscuits with the aid of moulds. Cook them in the furnace

18. Butter Biscuits

(Butter Biscuits of fine quality)

Constituents and Method of Preparation —

Starch	...	.	One seer

Suji	..	One seer
Sugar	.	One seer
Butter		One seer
Eggs	.	One dozen
Ammonia Carb	..	1½ Tolas
Soda bicarbonate	..	Two Tolas
Ammonia	.	One Tola

First of all, butter and sugar should be mixed and dissolved in a very good manner When they become homogeneous, add milk with it. Now break the yellow part and whiteness of the egg separately When they begin to give foam, mix them with above given mixture Now this mixture should be kneaded with starch and suji When it becomes thick, roll it and cut it into the shape of biscuits with the aid of moulds

19 Cheese Biscuits

(Biscuits of Cheese)

Constituents and Method of Preparation —

Fresh Butter	...	¼ lb.
Starch		,,
Cheese i e Paneer	,	5 ounces
Powder of *Rae*	..	One spoon
Chilli	...	6 spoons
Eggs	.	Six

Give the paste form by stirring the butter Then mix all the other things with it and ferment it Then roll the bread 3" thick and cut it with the aid of moulds Place them in the tin plate and cook them in the furnace for twenty minutes. The superior quality of cheese will be prepared

20. Picking Biscuits

Constituents and Method of Preparation —

Fresh Butter	..	...	Two ounces
Starch	..		One lb.
Salt			Half Spoon
Sugar	. .	..	Two ounces
Milk	...		as required

Butter and starch should be mixed and sitrred thoroughly Then *add salt, sugar some milk and knead it in a* very good manner Then roll it 1¼" thick board and make biscuits with the aid of moulds and prick it with a fork Then put on the tin plates and cook them on low temperature furnace

21. Biscuits of Almonds

Constituents and Method of Preparation —

Starch	...	...	One lb
Sugar Candy	.	.	One lb.
Butter		..	Seven tolas
Almonds			Five tolas

Powder the almonds and knead them with other things and prepare the biscuits as are explained in the previous method and cook them on the low temperature

22 Coconut biscuits

Constituents and Method of Preparation ·—

Take one coconut and cut it into small pieces Then mix white sugar candy according to the coconut and mix whiteness of 12 eggs and stir it thoroughly Then add a little of starch and ferment it and cut its small pieces on a paper and cook it on a low temperature.

23. Orange Biscuits

Constituents and Method of Preparation —

Take one or two oranges and boil them in water Boil them in this way twice or thrice so that their bitterness may be removed Cut them and extract its water and kernel The upper bark should be beaten with pastle and mortar and add an equal quantity of sugar candy Then put in the sun after pasting it into a plate When it becomes dry, you can cut the biscuits according to your own choice Turn the other side and make it dry Wrap it into a paper and pack it into a box These give energy to the stomach The hunters take those biscuits with them at the time of going for hunting

24. Sweetmeat Biscuits

Constituents and Method of preparation —The skin of lemon finely crushed and orange flowers, both should be beaten with a pestle and mortar very finely The jam of apricot about two spoons, loaf of sugar about three ounces, and yellow part of four eggs should be mixed Then beat the whiteness of four eggs and ferment it in a very good manner Make the biscuits of oval shape and sprinkle over it crystal of sugar Place it in the tin plates and cook it in the furnace of low temperature

25 Sweetmeat Biscuit

Constituents and method of preparation —Beat the pieces of an orange with the aid of a pestle and mortar. When it attains the shape of a paste, five tolas of finely powdered sugar, yellow part of four eggs, all these things, should be added. Now the biscuits can be manufactured Paste the whiteness of eggs on every biscuit and cook it in the furnace

26 French Biscuits

Constituents and Method of Preparation :—Put three eggs in one pan of the balance and weigh starch equal to their weight First beat the whiteness of three eggs in a very good manner When it acquires the shape of foam, add half ounce of upper portion of orange Add starch and sugar in small quantities

Then ferment it with the yellow portion of the eggs Make the biscuits of oval shape and sprinkle crystal sugar over them Place it over the plate and cook it over the furnace of low temperature.

27 Common Biscuits

Beat the yellow and white portion of six eggs with distilled water of rose and one spoon of brandy Then add one tola of aniseed and coriander. Then make biscuits of them with the aid of moulds Beat the whiteness of the eggs and paste it over the surface of every biscuit and sprinkle crystals of sugar and cook them in the furnace

28 Hard Biscuits

Constituents and Method of Preparation:—

Starch	One lb.
Butter	Two ounces

The quantity of milk should be so much as may be able to give the starch a kneaded form

Butter should be heated Mix it with pure milk Then knead the starch with it and roll it on a board and cut the biscuits Make holes over them with a fork and cook them in a furnace

29 Sponge Biscuits

Constituents and Method of Preparation :—Beat the yellow

portion of twelve eggs for half an hour. Then add the powder of ½ lbs of crystalline sugar and beat is so much as to give foamy shape to it and add it with them Add 14 ounces of starch with it and knead it after adding the skin of two lemons Place it in the tin moulds and cook them in the furnace Sprinkle crystals of sugar and cook them again in the furnace

30 Rice Biscuits

(Biscuits of Rice)

Constituents of Method of Preparation —

Flour of Rice	...	..	4 chhataks
Butter	.. .	..	2 chhataks
Crystal of Sugar (in powder form)			2 chhataks
Egg	.	..	one

Select pieces of pebbles and earth out of the rices and wash them thoroughly Make them dry at a shady place and powder them Sieve them through a cloth and separate 4 chhataks of rice flour Mix with it butter and powdered sugar The water should be added so much that the kneaded flour may be able to be rolled You should take care that the kneaded flour may not be too thin Roll it equal to the thickness of a biscuit neither too thick nor to thin Cut small pieces of round biscuits with the aid of moulds Cook them in the furnace at a low temperature

31 Gripe Biscuits

(Biscuits of dry dates)

Constituents and Method of Preparation —

Starch	.	..	.	half seer
Pure Ghee	..	..		4 chhataks
Milk	.	.	..	2 chhataks
Distilled rose water		.	.	1 chhatak

Sugar	.	.		4 chhataks
Pistachio			..	1 chhatak
Almond	...	.	.	1 chhatak
Dried Dates	..	...	.	2 chhataks

Put the dried dates in the distilled rose water and grind it in a very good manner Crush of almonds and pistachio should be mixed with it On the other side milk, ghee and sugar should be added in a very good manner Small clogs of it should be made Keep between two clogs the mixture of dates, almond and pistachio in small quantities Spread them equal to the diameter of a biscuit Cook it according to the method given previously The delicious and fine quality of biscuits will be prepared.

32 Cheese Biscuits

(Biscuits of Cheese)

Constituents and Method of Preparation —

Starch	...	...	...	4 chhataks
Baking powder	.	...	...	¼ spoon (tea spoon)

Foreign Cheese (of tin in a crushed form) one chhatak
Pure ghee (of superior quality) 3 spoons.

Starch and baking powder should be mixed Later on ghee should be mixed with it Then Cheese should be mixed Knead it by adding milk in little quantities Roll it in a thick form Cut the biscuits with the aid of moulds Cook it in the furnace after it.

33. Seed Biscuits

(Biscuits of Zeera)

Constituents and Method of Preparation ·—

Starch			7 lbs.
Sugar (in powder form)	..	...	1 lb.

Salt			4 ounces
Zeera	.	.	Half ounce
Milk	.		One quart

All the constituents should be mixed and kneaded. The fermentation should not be more than required.

Then make a sheet of it by rolling The sheet should be $\frac{1}{10}$ thick Cut it in the shape of round-shaped biscuits Holes should be made on them with the aid of a fork and paste the whiteness of the egg over them Then cook them in the furance

34. Rice Biscuits

(*Biscuits of Rice*)

Constituents and Method of Preparation —

Starch			Three lbs
Butter			16 ounces
Loaf sugar			1¼ lbs
Milk	.		Half pint
Salt	..	...	a little
Extract-of lemon			a little

Dissolve salt and sugar in milk Keep it aside for one or two hours Shake it off and on Add it with the mixture of starch and knead it Cut biscuits of it with a rectangular mould Prick it as required with a fork and cook it on a low temperature furnace

35 Oliver Biscuits

Constituents and Methods of Preparation —

Starch	...	Four lbs
Butter		¾ lbs
Milk	.	1¼ Pint

"Chte"—a spice for fermentation as required All should be mixed and kneaded thoroughly and rolled on a board. Then make a simple biscuit and prick with a fork Place it on a tin plate and cook it in a low temperature furnace

36. Finger Biscuit

Constituents and method of Preparation —

Starch	six lbs
Butter	Ten ounces
Milk	One quart
Sugar	according to taste

Warm half the milk Then add the material fermentation so that milk may become somewhat sour Add one lb of starch and keep it on a warm spot. Warm the remaining quantity of milk and butter with it Add starch with it, and then add all this in the fermented starch. Keep it aside on a warm place so as to make it fermented again Make 18 or 20 biscuits of each lb Paste some butter on the surface of the plates Keep these biscuits on them Prick them with a fork Cook them on a furnace of low temperature.

37 Neeples Biscuit

Constituents and methods of Preparation —

Sugar	One lb
Yellow portion of an egg	One lb
Starch	One lb
Hot Water	Half cup

Mixed all these things and knead them and make biscuites Place them on tin plates and cook them in the furnace

38 Lemon Biscuit —

Constituents and Methods of Preparation —

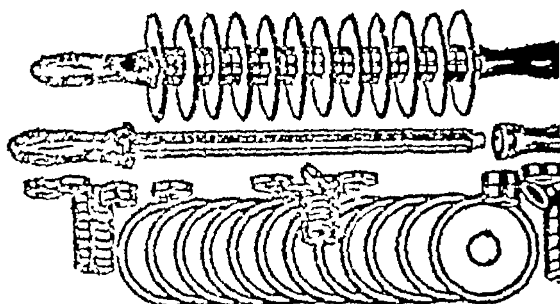
Starch	$5\frac{1}{2}$ lbs
Butter	12 ounces
Sugar	One lb
Milk or water	1 pint
Extract of Lemon	as required

Mix all the things together Prepare biscuits according to Previously given method.

Adjustable Toffee and Caramel Cutters

Toffee is a kind of sweetmeat made of sugar, butter There is another kind of toffee which is called *almond t* In it sugar and crushed almonds are mixed thoroughly by hot process and then this mixture is given the toffee f by the aid of Toffee cutters Caramel is also a kind of sw meat which is much liked by children.

First of all sugar and some essences are mixed in a very good manner. Then Toffees are cut with the aid of adjustable Toffee cutter.



Wherever you live, we guarantee you a fully com hensive after sales service supported throughout by mod indian factories Cottage Industry Factory pioneered introduced the modern toffee cutting machine and still l with the latest and greatest in quality, efficiency and valu

This adjustable Toffee and caramel cutter is for cutt up sheets of toffee etc. into strips or small pieces The s shaft is fitted with loose steel circular knive, between wh wooden gauges are fitted to give the required width of There are locked in position by end nuts The price of t machine is for 12 Blades Rs 105 00, 16 Blades Rs 130 00

VULCANIZING INDUSTRY

In the modern times, the transport plays a predominant part in the lives of human beings and even dumb-driven cattles. Because the population of India is increasing day by day, therefore every man is searching a place for his habitation The villagers try to go to cities and settle there They feel that the city life is more comfortable than the village life. With this end in view, they go from here and there This is the main cause that the vans of the trains are fully packed Similar is the case with the private limited companies. The buses and motors are seen plying from one place to another carrying the passengers who want to go to their destination This process of coming and going does not stop at any part of the day The number of passengers are on the increase day by day. The principal part of business depends upon transport and communication Lakhs of maunds of goods are transported from one place to another Thousands of the things are cheap on one place but dear on the other place We transport them from the place where they are cheap, to the place where they are dear and earn the profit In this way, we get the advantage of *place utility* This is the case with every business man.

Moreover the human nature is such that wants to see new places The work of communication and transport can be performed by the aid of motors and buses Briefly speaking, the communication and traffic has become the part and par el of the human nature Have you ever thought how much profit is pocketed by these big companies ? These companies invest lakhs of rupees and earn lakhs of rupees I want to draw your attention to the small industry without which communication and traffic business is impossible Though it is a Cottage Industry but the people who are doing this business are earning thousands of rupees by the aid of this industry From

our daily experience, we can say that lakhs of cycles, motor cycles, motors, buses, trucks and tractors are driven The tyres and tubes of all the vehicles become punctured and burst and holes appear on the tyres and tubes The men who set right these punctures and close the holes and burst places by vulcanizing have earned and are earning lakhs of rupees by the vulcanizing industry.

How many machines are needed for this industry The setting-up of the machines depends upon your choice You can start your work with one machine only If required, you can set up many machines and perform your business on a large scale The profit will increase with the increases in the number of machines This work is performed with the aid of four kinds of machines No 1—Cycle Tyres and Tubes vulcanizing machine No 2—Tyre vulcanizing machine No 3—Boiler Type Tyre vulcanizing machine No 4—Matrics

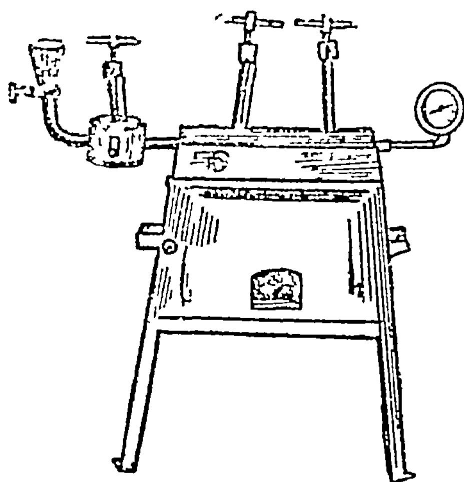
The function of every machine is different Machine No 1 can only vulcanize the tubes and tyres of the cycles Machine No 2 can vulcanize the tyres of motors etc Machine No 3 can only vulcanize the tyres of trucks, buses and tractors etc Matrics No 4 performs the work of resoling the tyres

From where the vulcanizing compound is available and how it is used —Compound is the name of that material which is just like the ointment which is applied on the boils Whenever we set to vulcanizing the tubes of cycles and tyres, first of all the burst place is rubbed with a file There is another solution that is used for vulcanizing purpose It is applied on the place meant for vulcanizing with the help of a finger or brush.

Set aside this tube for two or three minutes Now the compound that is sticking on a cloth is cut off according to the length and breadth of the punctured place, with the help of a scissors The compound sticking cloth is put over the punctured place and pressure is given with the aid of a machine Under the pressure a wooden square piece is put so that vulcanizing place may be vulcanized in a very good

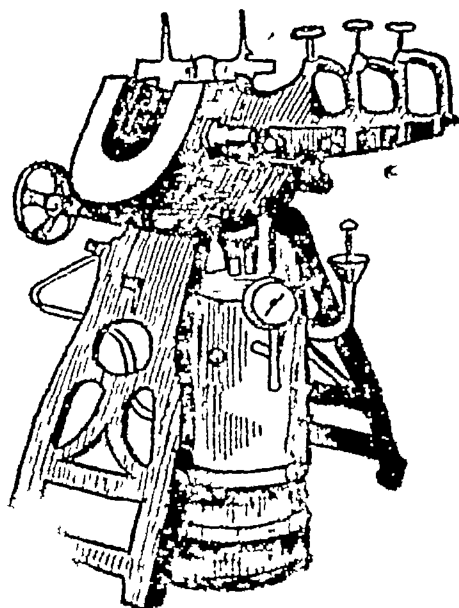
manner This solution can be had from every office of Dunlop Tyre Company, Goodyear Tyre Company, Firestone Tyre Company Moreover, this solution and compound can be had from the tyre and tube seller On every small box (*dibba*), the method of applying the solution or compound is fully described.

How the cycles' Tyres and Tubes Vulcanizing machine is operated—As you see in the picture the machine is made of two parts—the upper part and the lower part The upper portion shows the tanki. There are two ends of the tankies On one side, a watch is visible and on the other side, a tap is visible The handle of this pipe is somewhat loosened and the water is put from upper side when the tank is full, the water will come out of its own accord Now switch it off In the lower portion of the machine burn soft coke, charcoal, wood etc What is available can be used for burning purposes Burn in the oven-like fire place in the machine, fuel that is available As soon as the water is heated, the hand of the watch will revolve of its own accord When the hand of the watch comes to No 20 or 25, then think that the machine is in working order If now you want to vulcanize the tube of the cycle, rub it with a file Clean it with petrol Now apply the solution on the vulcanizing place and keep it aside for two or three minutes Cut the square pieces of vulcanizing compound and stick it on the place meant for vulcanizing and fix the tube under the pressure in the machine Put a square piece of wood under the pressure so the pressure may be even on the tube and within two or three minutes the tube would be vulcanized



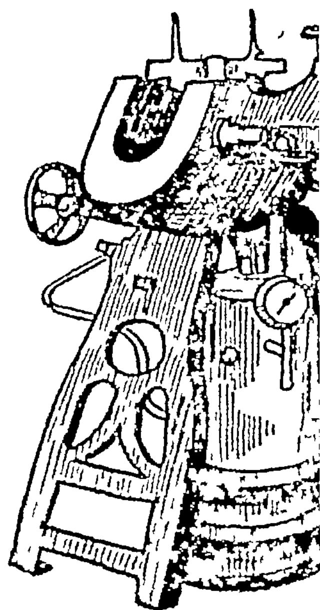
Boiler Type Vulcanizing Machine

You can vulcanize the tyres of buses, trucks and tractors with the aid of this machine. The vulcanizing process is the same as you have already studied in the detail of the above machine. Besides, one thing should be kept in mind Widen the hole with the aid of an iron file If the tyre is much burst and its hole goes from one side to the other side, oth it with and clean



Boiler Type Vulcanizing Ma

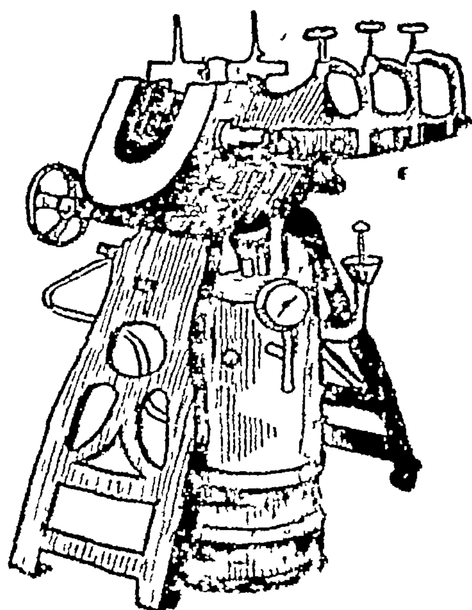
You can vulcanize the tyres of buses, trucks ar with the aid of this machine. The vulcanizing pro same as you have already studied in the detail of the above machine Besides, one thing should be kept in mind Widen the hole with the aid of an iron file If the tyre is much burst and its hole goes from one side to the other side, smooth it with the aid of a file and clean it with



petrol After it, apply some solution and kee Because the tyre is very much burst, therefore yo put big pieces of the compound This tyre will be in a very good manner. The water of this mach changed after twelve hours The steam is kept of S price of this machine is Rs 1600 to Rs 2500

Boiler Type Vulcanizing Machine

You can vulcanize the tyres of buses, trucks and tractors with the aid of this machine. The vulcanizing process is the same as you have already studied in the detail of the above machine. Besides, one thing should be kept in mind. Widen the hole with the aid of an iron file. If the tyre is much burst and its hole goes from one side to the other side, smooth it with the aid of a file and clean it with petrol. After it, apply some solution and keep it aside. Because the tyre is very much burst, therefore you have to put big pieces of the compound. This tyre will be vulcanized in a very good manner. The water of this machine is also changed after twelve hours. The steam is kept of 80 lbs. The price of this machine is Rs. 1000 to Rs. 2500.



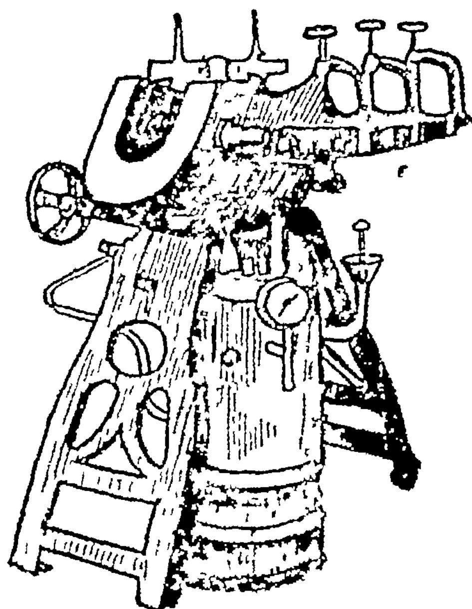
With the aid of this machine, motor tyres are vulcanized. The method of vulcanizing is as follows —

We cut one inch deep rubber around the burst place. First smooth it by rubbing Apply the solution at the place in question and keep it aside for an hour After that cut out of the sheet-like compound small pieces and place them one upon the other on the burst place until the ditch like hole is filled up Then press from above side One should come upon the other until this ditch is filled up Now prepare steam When the hand of the indicator is at 80 Fasten the tyre under the pressure of the machine Within an hour, the tyre would be vulcanized The water of this machine is changed after twelve hours You can use charcoal or wood for heating the machine according to your own choice The price of this machine is Rs 1200 to Rs 1500 Every kind of vulcanizing machines can be had from the Cottage Industry, P B No 1262, New Market, Anguri Bagh, Delhi

Note To vulcanize means to treat (rubber) with sulphur at high temperature to increase elasticity and strength and yield hard or soft flexible rubber Sulphur is a pale-yellow non-metallic element occurring in crystalline and amorphous modifications, burning with blue flame and stifling smell, and sulphuric acid, and in medical treatment of skin-diseases. Hard vulcanized rubber is called vulcanite The thing which contains elasticity is said to be elastic, which spontaneously resumes its normal bulk or shape after contraction, dilatation or distortion It can be said of solids, liquids and gases

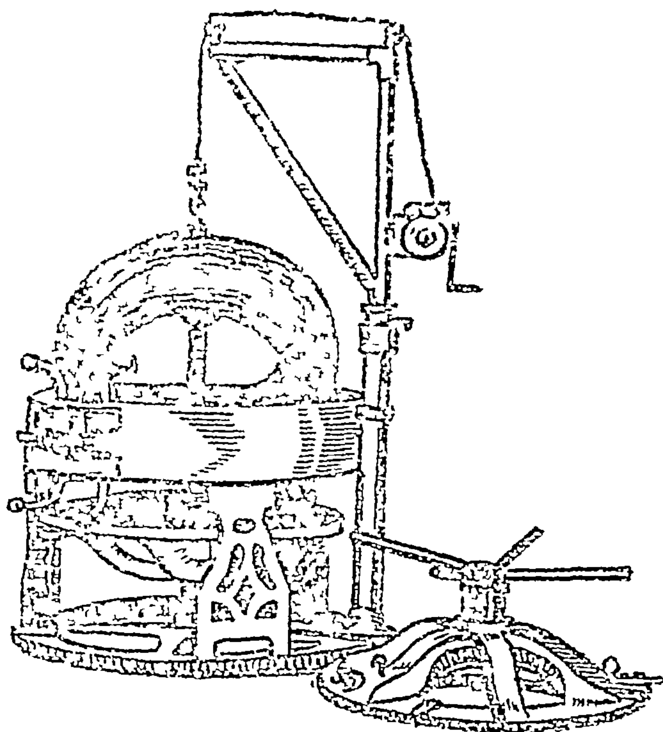
Boiler Type Vulcanizing Machine

You can vulcanize the tyres of buses, trucks and tractors with the aid of this machine. The vulcanizing process is the same as you have already studied in the detail of the above machine Besides, one thing should be kept in mind Widen the hole with the aid of an iron file If the tyre is much burst and its hole goes from one side to the other side, smooth it with the aid of a file and clean it with



petrol After it, apply some solution and keep it aside Because the tyre is very much burst, therefore you have to put big pieces of the compound. This tyre will be vulcanized in a very good manner. The water of this machine is also changed after twelve hours The steam is kept of 80 lbs. The price of this machine is Rs 1600 to Rs 2500.

Matrics for Resoling the Tyers —If you are in need of resoling the tyres, you will have to keep the following matrics The size with their price is given below :—



Matrics

1 82 5×20 size adjusting in 8 25×20 Table
Price Rs 900

2. 34×7 „ , 8 25×20 Table
Price Rs 1100.

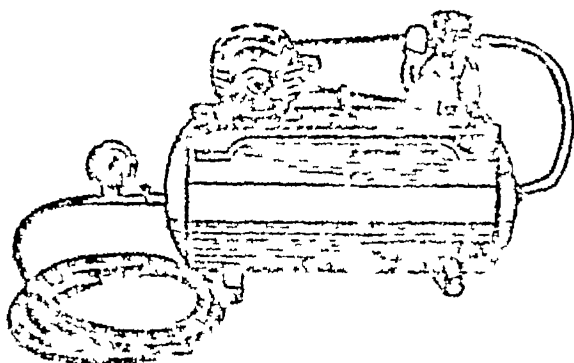
3 32×6 „ „ 8 25×20 Table
Price Rs 1250.

The following are the charges of vulcanizing the tyres and tubes ? The charges vary from city to city. The charges in Delhi will be annas 6 whereas they are annas 10 in Calcutta Similar is the case with Madras and Bombay.

For instance, we are taking the rate of Delhi into consideration. The charges for vulcanizing the tubes of cycles and motor cycles are 6 annas per inch and the charges of the motor tube is 8 annas per inch. The charges of one cut of the cycle tyre is 8 annas and if longer one, the charges will be Rs. 1 for one inch cut. The charges of the smallest cut of the tyres of buses, motors and tractors are Rs 15. The price of the large cuts can be determined by the work and time spent. The cost of production is 1½ annas whereas the income is 6 annas. You can yourself judge the utility of this work. if you buy one machine that can vulcanize the tyre and tubes of cycles, you can earn Rs 200 or Rs 300 monthly very easily.

Air Compressor Machine

Air Compressor Machine 115 lbs. Hydraulic Test 10 C. F. M. capacity.



Capacity means here electrical power of the apparatus to store static electricity.

Price without motor is Rs [illegible]. Valve: a kind of automatic or other device for controlling passage of liquid or gas or the like through pipe etc.

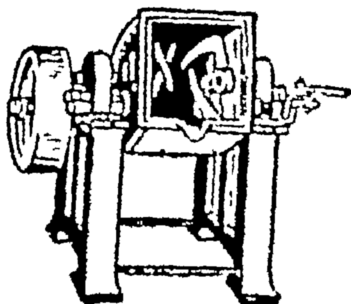
The scientists have got hold over the five elements of the universe, i e air, water, earth, fire (heat), sky (sound). Air compressor is one of the successful inventions of the modern times for inflating tubes of buses and trucks etc. It is used for squeezing together the *air giant which is used as a motive* power for moving some parts of the other machines With the aid of this machine, the work of hours can be completed within seconds The machine is also used in monoprinting This machine is made of a long zinc pipe and a big drum to hold the air There is also a very fine valve to control the passage and compression of air The whole process of the machine is pivoted round this valve. This machine can be driven by the aid of electricity

Tooth Paste Industry

The tooth paste is used for cleaning or preserving teeth It is applied with the aid of a tooth brush This Industry is in the hands of the foreigners The foreign companies are earning lacks of Rupees by selling tooth pastes in different colours under different names The tooth-paste tube that hardly cost annas 5 at the most is sold in Rs 1 and a half. The foreigners are earning lakhs of Rupees by this industry The method of making tooth-paste or tooth-powder is given below in detail Three things are essential for this industry. No. (1) Mixing Machine (2) Collapsible Tube (3) Tube filling Machine Some other material is also required It is available at every place

Method of making tooth paste —No (1) Precipitated Chalk (2) quicklime=46 tolas (3) Fine powder of goond Katcera=2 tolas, (4) Scrap of Soap prepared from olive oil =4 tolas 1¼ mashas, (5) White Glycerine=24½ tolas, (6) screen powder=$\frac{1}{16}$ tola, (7) Water=$18\frac{8}{10}$ tolas, (8) Fragrance =½ tola, (9) Alcohol=5 tolas

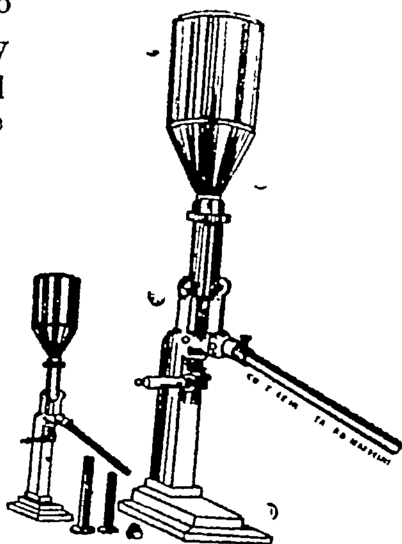
The Method of making the mixture of these things —Put the powdered Goond in the alcohol Mix hot water, Glycerine , scraps of soap and essence into it Make it homogeneous by putting it into a small vessel Now pass the precipitate chalk and screen powder through a cloth and mix it into that mixture and shake it slowly so that there may not be any thick pieces of the unmixed powder Put the whole compound into the mixing machine. Mixing Machine can hold 20-30 seers of paste compound for mixing. This



machine is driven by the aid of electricity. It can prepare the paste of the whole mixture within 15-20 minutes The price of this machine is Rs 987

After preparing the paste, it is taken out of the mixing machine in little quantities and put into the feeder of the Paste filling machine And with the aid of this machine, you can fill as many collapsible tubes as you can The detail of the paste filling machine is like this Both the machines can be had from the Cottage Industry, (K-8), P B 1262, New Market, Anguri Bagh, Delhi

The Paste Filling Machine equally suitable for viscous Paste and type upto very thick Pastes This machine is equally suitable for filling into tubes, Bottles, Tins, Jars, or any other type of container. All contact parts, that is to say the hopper, the cylinder, the piston, all valves, incidental parts that come into contact with the filling material are made of stainless steel or gun metal It can be adjusted to take maximum amount of doses with one pull over of the lever i e 2 ounces, The viscosity of the filling materials and the output will range from 700 to 1000 P H The complete tube filling machine with three sizes of nozzles for different sizes of tube is Rs. 1700. Small size Rs 400



Second Method of Making Tooth Paste :—(1)Precipitated Chalk=44 parts,(2) purified *Khariya Mitti*=3 parts, (3)washed *Goond Kateera*=5 parts, (4) Gloxilvate=4 parts, (5) Glycerine =15 parts, (6) Hot water=3½ parts, Essence=½ parts

The method of mixing is the same as is described above. First of all, liquid matter should be mixed. The other things should be sieved and mixed with the liquid substance and shake it slowly. After it, the whole compound should be put

into the mixing machine It prepares the paste within 10 or 15 minutes

After it, you can fill this paste into collapsible tubes by the aid of tube filling Machine You can pack them beautifully and sell them into the Market

Anticeptic Dental Cream

Precipitate Chalk=20 mashas, (2) White Soap Scraps=4 mashas (3) Sodium Silicate=10 Ratti, (4) Venter Green oil=3 drops, (5) Rose jasmine oil=4 drops, (6) Carmine (dissolved) in water=2 drops First of all, mix the solid things like chalk etc Then add the above mentioned essences of there kinds. Mix them thoroughly in order to make them homogeneous Then mix glycerine in water Prepare paste with the aid of the mixing machine without adding the glycerine.

Carbolic Tooth Paste :— (1) Pure honey=16 ounces, (2) Glycerine=4 ounces Mix two things thoroughly. Keep them aside. (3) Precipitate chalk=16 ounces, (4) Arrowroot=4 ounces, (5)Carmine (red colour)=4 mashas, (6)Carbolic acid=1 dram, (7) Venter green oil=20 drops, (8) Cinnamon oil=5 drops, (9) Alcohol of 9%=1½ ounces First of all, chalk etc. solid things should be mixed thoroughly in the mixture of honey Then mix liquid things into it and prepare them into the mixing machine

Tooth Powder

Menthol Tooth Powder—By the use of this powder, the mouth will feel a cold sensation, flavour and flagrance Menthol is the wonderful medicine that can destroy the bad odour of the mouth

Menthol=1 part, (2) Sylol=8 parts, (3) Soap (Superior quality) 20 parts, Calcium Carbonate=20 parts, (5) Magnesia Carbonate=7 parts,(6)essential oil of mint=2 parts All things should be passed through a thin cloth Take a little of the powder and mix these essence thoroughly Now this flavoured powder should be mixed with the remaining powder Now the menthol powder is ready The special thing for preparing

the powder is that chalk etc· is passed through a thin cloth in order to purify it. And essences are added in a little quantity of chalk They are added with the remaining quantity of powder Therefore in the methods of powder or paste making, the same process should be followed.

(2) Charcoal (2) Pure Khariya Mitti (3) Sugar Take these three things in equal quantities Powder them finely and filter them through a cloth Now add menthol or clove according to your own choice The powder is ready.

(3) Pure chalk mitti=4 chhataks, (2) Katha=2 tolas, (3) Alum (burnt or calcined)=-½ tolas, (4) Black Pepper=6 mashas, (5) Clove=6 mashas, (6) Lohari Salt=1 tola, (7) Kernel of Cardamom=6 mashas Powder all these things and pass them through a thin cloth Keep this point in view that alum or Salt may not be put more than the required quantity otherwise the powder will be wasted

(4) Calcium Carbonate=3 chhataks, (2) Magnesia Carbonate=1 tola (3) Milk sugar=½ chhataks The same process should be put into practice

(5) (1) Chalk mitti=½ seer, (2) Borax=4 chhataks, Alum (burnt or calcined)=4 chhataks, Black pepper=½ chhatak Follow the same process as is given above.

(6) Charcoal=4 chhataks, Chalk mitti=4 chhataks, Bark of Walnut tree=4 chhataks, Clove=1 tola

(7) Sugar=120 parts, Alum=10 parts, Cream of Tartar=20 parts, light rosy Colour as required

(8) Chalk earth (*mitti*)=½ seer, Sugar=1 chhatak, Glycerine=½ tola, Carbolic acid=2 drams, Rosy colour as required Follow the same process as is given above

White-Chalk Industry

In modern times, Education is playing the main role for improving the standard of Indian people. Education opened up new vistas for extending the knowledge of man It is generally seen that the ordinary people have risen to a great position and have attained high knowledge and posts after attaining high education In the field of education, white chalk plays an important part In every school and college from class I to class M A , the teachers and professors make the students understand difficult problems by writing on blackboards with the help of white chalk There are innumerable schools and colleges in India, where lakhs of packets of chalks are consumed everyday Consequently there are many big and small factories that are manufacturing white chalks You may yourself imagine that if there be no profit, nobody would dare to start such a business This business is most profitable You can earn much by starting this business but a great heed should be paid to it.

Material for manufacturing white chalks —These chalks are manufactured out of *China clay*. Some quantity of Plaster of Paris is mixed with it. There is another kind of light *slaked* plaster of Paris It is independently used for manufacturing the white chalk Both the materials can be had from every city of India in any quantity you like. There are many factories in Delhi that are manufacturing white chalks

What machines are needed for manufacturing chalks — This industry needs no machine There are some moulds made of ivory that are required In these moulds 12, 16, 24, 32, 48, 64, 128 and 320 chalks can be manufactured at a time. The names of these moulds are given below :—

						Rs.	nP
(1)	The price of	the 12	chalk	mould	is	40	00
(2)	,,	,,	24	,,	,,	75	00
(3)	,	,,	72	,,	,,	220	00
(4)	,,	,.	16	,,	,,	52	00
(5)	,,	,,	32	,,	,,	101	00
(6)	,,	.,	64	,,	,,	200	00
(7)	,,	.,	128	,	,,	395	00
(8)	,,	,,	144	,,	,,	425	00

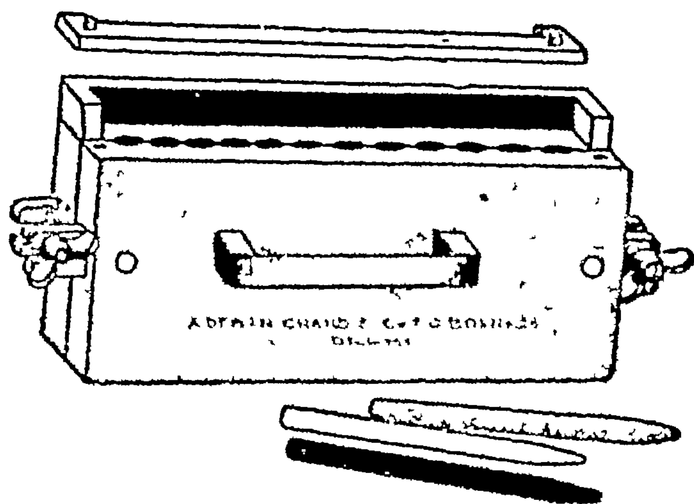
1 **How the chalks are manufactured** —There are two methods of manufacturing the chalks These are made from *Khariya Mitti* and Plaster of Paris *Khariya Mitti* and plaster of Paris are mixed together in a proper manner. Mix so much water as to make the mixture just like a thick paste. This paste may be such that can be easily poured from one vessel to another Now dip a small piece of cloth into some oil and lubricate all the holes of the chalk-making mould. Then pour the paste into the holes of the chalk-making mould Place these moulds in the sun so that they may become somewhat dry. After a short while open the mould and take out these white chalks out of the mould and put them in the sun. Do the same process whenever you want to manufacture the fresh quantity of chalks Now you can pack them into card board small boxes that are meant for the purpose. In this form, they are ready for selling in the market You can sell them at whole-sale or retail prices according to your own choice. If the chalks are hard in writing The quantity of Khariya mitti should be increased and the quantity of Plaster of Paris may be decreased but if the chalks are soft in writing

the quantity of plaster of Paris may be increased and the quantity of the *khar a mitti* may be decreased

The second Method —In this, the plaster of Paris which is prepared only for chalk making is used. The Method of this is that you should take ready-made material and mix so much water in it that it may become just like a paste and pour it into the holes of the mould after lubricating the mould and place it in the sun for a little while After this take out the chalks and place them in the sun When dry, you can use them for writing

Cardboard boxes for packing the chalks —These cardboard boxes are made of 8 ounces thick cardboard The makers of such boxes are to be found even in small cities Boxes can be prepared according to your own choice

What is the shape of chalk-making mould and how are they prepared —



The figure of the chalk making mould is before you All these moulds can be had from —

Cottage Industry, New Market, Anguri Bagh, (K S, P B No 1282 Delhi 6

What machines are needed for manufacturing chalks This industry needs no machine There are some mould made of ivory that are required. In these moulds 12, 16, 24, 32, 48, 64, 128 and 320 chalks can be manufactured at a time The names of these moulds are given below :—

						Rs	nP
(1)	The price of	the 12		chalk	mould is	40	00
(2)	„	„	24	„	„	75	00
(3)	„	„	72	„	„	220	00
(4)	„	„	16	„	„	52	00
(5)	„	„	32	„	„	101	00
(6)	„	„	64	„	„	200	00
(7)	„	„	128	,	„	395	00
(8)	„	„	144	„	„	425	00

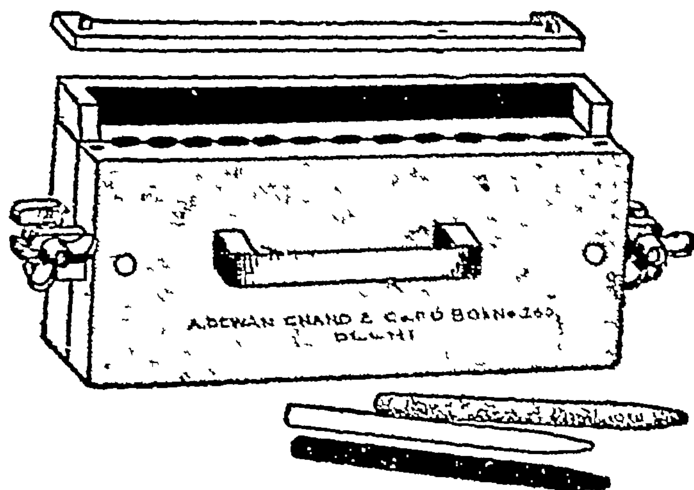
1. **How the chalks are manufactured** —There are two methods of manufacturing the chalks These are made from *Khanya Mitti* and Plaster of Paris *Khanya Mitti* and plaster of Paris are mixed together in a proper manner. Mix so much water as to make the mixture just like a thick paste This paste may be such that can be easily poured from one vessel to another. Now dip a small piece of cloth into some oil and lubricate all the holes of the chalk-making mould. Then pour the paste into the holes of the chalk-making mould Place these moulds in the sun so that they may become somewhat dry. After a short while open the mould and take out these white chalks out of the mould and put them in the sun Do the same process whenever you want to manufacture the fresh quantity of chalks Now you can pack them into card board small boxes that are meant for the purpose. In this form, they are ready for selling in the market. You can sell them at whole-sale or retail prices according to your own ch
If the chalks are hard in writing The quan
mitti should be increased and t
Paris may be decreased

the quantity of plaster of Paris may be increased and the quantity of the *khar a mitti* may be decreased.

The second Method :— In this the plaster of Paris which is prepared only for chalk making is used. The Method of this is that you should take ready-made material and mix so much water in it that it may become just like a paste and pour it into the holes of the mould after lubricating the mould and place it in the sun for a little while After this take out the chalks and place them in the sun When dry, you can use them for writing.

Cardboard boxes for packing the chalks — These cardboard boxes are made of 8 ounces thick cardboard. The makers of such boxes are to be found even in small cities Boxes can be prepared according to your own choice

What is the shape of chalk-making mould and how are they prepared :—



The figure of the chalk making mould is before you. All these moulds can be had from —

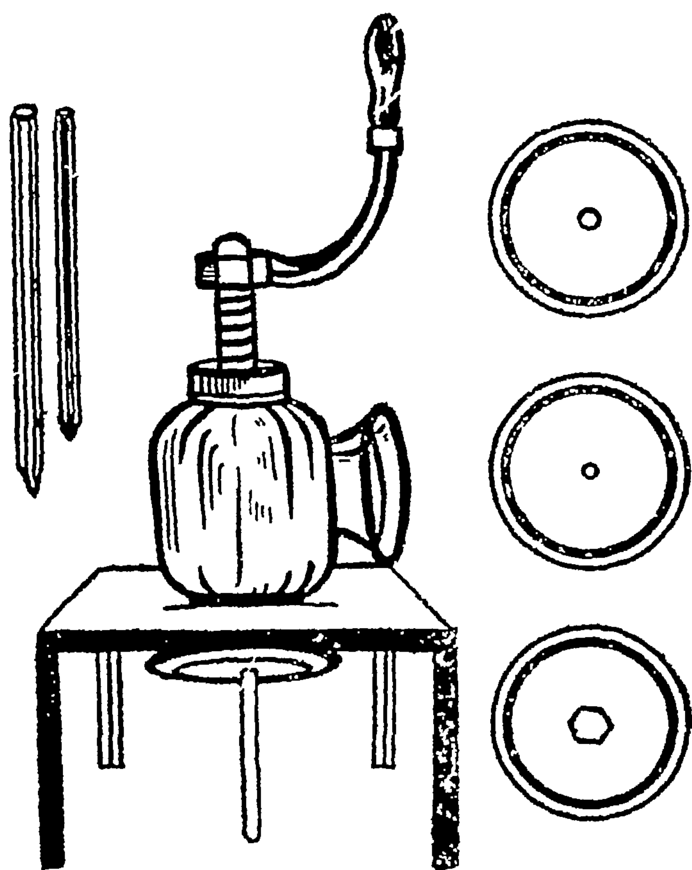
Cottage Industry, New Market, Anguri Bagh, (K-8) P B. No 1262, Delhi-6

How much capital is needed to start this business —This depends upon your own will You may perform this business with a capital of Rs. 100 If you want huge profit, you can establish the business with a capital of Rs 1000

How many chalks can be made within an hour :—This also depends upon your own will. If you work with two or three moulds, less quantity of chalks will be made If you work with more moulds, greater quantity of chalks will be prepared. Women and small children proved a great success in performing this business On the one hand, we have to give them less pay, on the other hand, their thin fingers are very active to work If this work is performed with labour and care, Rs. 400 or Rs. 500 monthly can be earned

Slate Pencil Industry

In the chapter on white chalks and coloured pastels, you have studied that it is essential to provide necessary sources for spreading education State pencil is one of these sources.



State pencils are used from first class to eighth class There are many factories of it Thousand boxes of slate pencils are being made daily in these factories and are sold in the

market The businessmen earn daily lakhs of rupees by the grace of this business This is a very simple business It can be got done by illiterate labourers It is a cheap material. Every petty shopkeeper can buy it without thinking much over it. You can start this business by an investment of Rs. 200 or Rs 300 and you can earn much by this business

If you can buy four or five machines you can make many boxes of state pencils daily. The figure of the machine is given on page No 137. You see that the machine is fitted on a table. Its mouth remains downwards and the handle remains upwards The material is put into the feeder By revolving the handle from upper side a long thin rope begins to suspend horizontally This is called state pencil It is taken out of the machine and is cut according to the standard size of the slate pencils and placed into trays These slate pencils are used for writing, when dry.

These machines are of different sizes which can be divided into four parts Every machine is equipped with three dies. One die is of six-sided and the other two are round One of these two round dies is big and the other small The price of this small machine equipped with three dies is Rs 40 The price of the B quality machine is Rs 80 The price of the C quality machine is Rs 120 and the price of the D quality machine is Rs 175 All these machines can be had from the Cottage Industry, New Market, Anguri Bagh P B. No 1262, Delhi 6

The method of making slate pencils Take plaster of Paris in a slaked form If it is not available in the market, take some *khariya mitti* (china clay) Mix properly three parts of china clay and one part of plaster of Paris and put so much water that you may be able to knead it like flour Take one seer of the above material Five tolas of gum may be melted in hot water and mixed with the compound When all the things are mixed together properly, put it on the floor and hammer it with flat wooden staff so that two or three men may turn its upside down and give strokes The better the stroking process, the better the quality of the slate

pencils You should bear in mind that the stroking process may not be performed in the sun If you will do so in the sun the compound may become dry and would not be able to proceed in the machine Therefore it may be kept in the shade at the time of giving strokes on it Fit the machine on the table and lubricate it with some oil and fit die according to your own choice Because you have three kinds of dies in your possession You can fit the die after the kind of the slate pencil which you want to make Put this compound at the mouth of the machine and revolve the handle from upper side The slate pencil will automatically suspend downwards in the shape of a small rope Put it in the sun and cut it according to the standard size of the slate pencil When you want to pack them into card-board boxes, make their mouth pointed with the help of a pencil sharper so that it may look beautiful

Note The quantity of soda silicate that is given above, always depends upon the climate and the place where you want to prepare slate pencils You can increase or decrease it according to your own choice The quantity at which the state pencil may be manufactured, can be the quantity to be taken for the process in question

You can get ready made material for slate pencil making, from the market If you can get it, then you need not mix china clay and plaster of Paris The ready made material consists of all the elements which we find in plaster of Paris and China Clay

Printing Industry

The economic uplift of the country can be developed with the advancement of Industry and agriculture side by side Printing Industry has played a great part in the development of agriculture and Industries

The modern agricultural implements, good-variety of seeds and fertilizers are put into use day by day in India. The several development projects have been launched, but the main problem of upliftment of the agiculturists still remains to be solved. There are $5\frac{2}{3}$ lakh villages in the country and more than 20 crores of people inhabit them The country can progress only if these villages progress

Our leaders cannot change the pace of the rural areas by passing laws or issuing orders It can only be done through hard labour and co-operative work

Economic independence can be attained through industrial revolution How to improve the lot of 40 crores of people is the big problem. The political revolution cannot be complete without an economic and social revolution It is for the people to usher in an era of happiness and prosperity by stepping up production on land and in factories

There does not exist in villages proper arrangement for the food, clothing and *education* of children The children of today are leaders of tomorrow. How to make provision for their food, clothes and *education* is a major problem.

The real wealth of a country, is not its silver or gold (of course, silver and gold are commodities of trade) The real wealth of a country lay in its production from land and *factories*. Increased production depends on the integrated and co-operative effort of the people of a country.

While the whole world is changing, the Indian cultivator has not changed He still uses the age-old plough. Our agriculture should use modern agricultural implements.

The peasants should use good quality seeds and fertilizers Where no irrigation facility is available, they should have tubewells If they do all that and work hard, there is no reason why they shall not become economically sound.

All these things are possible if work is done on a co-operative society basis There shall be a co-operative society in every village so that modern agricultural implements and other amenities may be provided.

There shall be a panchayat, a co-operative society and a school in every village During the next five or seven years there will not be a single child between the 7-11 age group who will not go to school for education

As you know, education cannot be fully developed without the advancement of Printing Industry. New kinds of Printing Machines have been manufactured in our workshop in order to print books, Newspapers, Magazines for children as well as for the grown-ups The speeches of our leaders can be kept safe for the coming generations only by the Printing Industry. The melodious songs of actors and actresses can be kept safe after their death only by the Printers and Publishers Books can teach so much in a day what you can learn through teachers in many years For the uplift of Industry and agriculture, we have prepared many kinds of Printing machines The old inscriptions and writings of *Rishi's* and *Munies* have been given a book form for the coming generation

The following Printing machine accessories have been prepared by us -

Essential Material for Printing Industry

Type Case —In Printing, type case is a kind of receptacle with compartments *Upper Case* contains capital letters while the *lower Case* contains small letters. The men who pick out these letters and set them in a readable form are called compositors This case is made of wood The case is put on a stand that is called *Case rack* There is also a fixed or movable frame of wooden or metal bars on which

metal or *wooden galleys are placed* This *rack is called galley rack* In printing there is an oblong tray to which type is transferred from *Composing* stick The proof, in slip form, not in sheets or pages is also called a galley.

(2) **Type** —In printing, type is a piece of metal or wood having on its upper surface a letter or character for use in printing(collective or single) Wooden Types are now used only for posters Books, newspapers and magazines are printed in various types There are many kinds or sizes of the type Many books are printed in large type Brilliant, diamond, pearl, ruby, nonpareil, emerald, minion, brevier, bourgious, long primer, small pica, pica, English, great primer and canon type The principal sizes in ascending order is Black letter, church text clarendon, Garman-text, Gothic, Italic, Roman, Runic, Script type The types of different letters are kept separately in fount of types Type bar is a line of types in a solid bar as cast in some type setting machines Alloy of lead, tin and antimony is called a type-metal This alloy is used for printing types. *Type written* matter is called a *Type Script.* The Compositor is called a *type setter* Type *setting* is the setting of types in proper order for printing

(3) **Mould** —This is a kind of hollow form into which hot molten roller composition is cast to cool into required shape.

(4) **Stick** —The metal flat bar is called a composing stick The Compositor keeps the composing stick in the left hand and picks *out* the type with the fingers of the right hand and sets them in the composing stick in a readable form When the stick is full, the composed matter is transferred from composing stick to the galley Sticks are made of Brass and iron

(5) **Chase** —The chase is an iron frame for holding composed type for page or sheet The composed pages are locked properly so that they may not become loose at the time of printing

(6) **Forecep** —There are foreceps or twigs with the ai of which the compositors incorporate the mistakes in th composed matter

(7) **Leads** —Leads are put into the composed matter s that type may not break at the time of printing

(8) **Wooden or type spaces** :—The spaces that are pu between words, letters or lines in printing are called meta spaces. But there are wooden spaces of uniform size tha are put at the time of locking the form

(9) **Brass rules** —Brass rules are used in printing most probably in table form or table work These can also be had from us

(10) **Metal Stones** —Metal stones are very plane thick sheets of metal on which forms are locked

All the above mentioned things can be bought from *Cottage Industry*, Anguri Bagh, Post Box 1262 (K 8) New Market, Delhi

How to Print :—The printing is done in printing presses. Printing means producing blocks pictures, etc by applying inked types, blocks, or plates, to paper, vellum etc. There is a specially prepared ink for printing It is called the printer's ink It is a viscous paste similarly used in printing

Corner	8	1	Corner	
Middle	9 12	16 13	Middle	(1)
Corner	5	4	Corner	
Corner	7	2	Corner	
Middle	10 11	15 14	Middle	(11)
Corner	6	3	Corner	

Locking of Machine Form of 16 Pages

One Test (1) The first test for the Correction or right imposition is that if the form is locked up correctly, there will be a difference of 8 between the *Corner* and the *Middle* figures if taken crosswise.

(2) **The second test** —Add from (i) group Corner 8+1 =9 and from (ii) group Corner 7+2=9 Add from (i) group middle 9+16=25 and from (ii) middle 10+15=25. Add from (i) group middle 12+13=25 and (ii) group middle 11+14=25, Add from (i) group 5+4=9 and from (ii) group Corner 6+3=9 From the above it shows that the sum of the Corners will be equal and the sum of the middles will be equal

Third Test —*If we go from corners to Middle, there will be* a different of 2, such as, 3—1=2 , 8--6=2.

When you have thoroughly satisfied yourself that the forme that is locked in the chase is correct in imposition, then you can set it on the machine for printing In printing, imposing means laying of pages of type in proper order and secure them in a chase

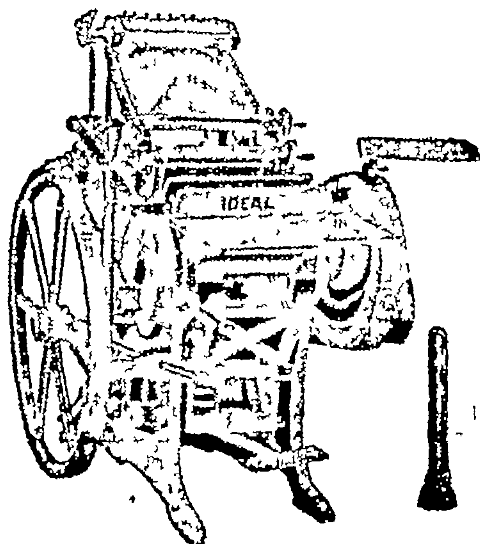
When the printing machine will be operated by the aid of the electric machine, the lead type will take the ink from the rollers and will pass it to the white paper that is revolving with the aid of the cylinder of the machine In this way, the papers are printed one after another Some machines can print 2000 sheets within an hour and some can print 3000 sheets at a time

There are some such machines in printing Industry that can print automatically No man is allowed to touch the paper The machine automatically picks the white paper and throws on the other side in a printed form If the papers are not set properly, the machine will stop automatically.

There are some such giant machines like rotary machines as cut and print the newspaper and fold it automatically and will give you newspaper complete in every respect. Seeing such wonderful devices and inventions, we go deep into thinking how man have progressed so much scientifically.

printing Machines

For Treadle and Power Driver with fast and loose pulleys & belt shifter with 4 Inking Rollers and one Vibrating Rider



Equipment Long Ink Fountain, Crank Shaft Single Ink Disc, Combined Pinion & Gear Wheel, Impression Throw-off Main & Back Shafts of Steel, Depressible Grippers Side Arms of Steel Forged

Specification

Size ·	8"x12"	10"x15"	11½"x16½"	12"x18"	17"x22"
Planten size	9"x13"	12"x18½"	13½"x00"	15"x22"	20½"x26"
Inside Chase	9"x13"	10½"x15½"	11½"x16½"	13"x19"	18"x22"
Power required	½ H P	½ H P.	1 H P	1 H P.	1½ H P.
Impressions per hour .	1500	1200	1200	1000	900
Dimensions of pulley .	14"	14"	14"	14"	14"
Revolutions to one impression	6	6	6	6	6
Floor Space .	4'x4½'	4½'x5'	4¾'x5'	5'x5½'	5½'x5½'
Net weight approx	1640 lbs	2050 lbs	2296 lbs	2296 lbs	2624 lbs.
Gross weight approx	1804 lbs	2214 lbs	2496 lbs	249 lbs	2950 lbs.
Price of Machine	2000	2350	2450	2800	3550

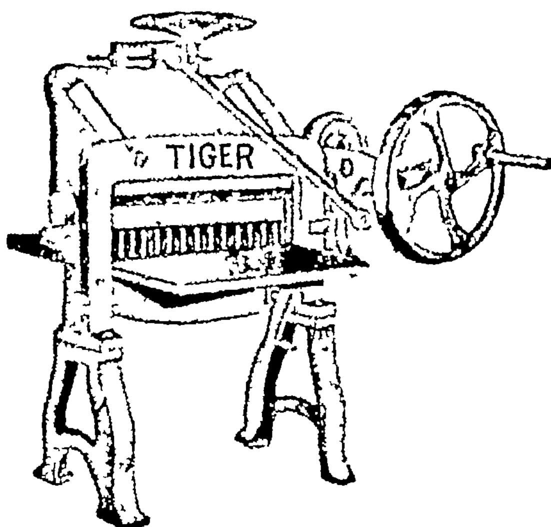
Rs. 100 will be Extra for Power drive

Accessories Included :

3 Chases, 2 Sets Roller Stocks, 1 Roller Mould, 2 Wrenches Set Roller Trucks, 1 Oil Can Without Electric Motor.

Tiger Paper Cutting Machine

Completely Fitted With Ball Bearings—Favourably Compares With All Foreign Makes



SPECIFICATIONS AND PRICES

	SIZE OF MACHINE						
	20″	22½″	26″	28″	32″	36″	42″
Height of cut	3½″	3½″	4″	4″	5″	5″	5″
Cut per minute . ..	10	8	8	8	6	6	6
Height of Machine . . .	54″	58″	60″	60″	65″	70″	75″
Power Required (H P)	¾	¾	1	1	2	2	2
Floor Space .	54″ x 58″	56″ x 50″	57″ x 51″	60″ x 54″	65″ x 58″	72″ x 62″	82″ x 72″
Price of the Machine for hand drive Rs	1350	1450	1550	1700	2070	2470	
Price of the Machine for hand and power drive with automatic disengagement, but without motor . Rs	1450	1550	1650	1800	2170	2570	3500 power only

ACCESSORIES INCLUDED

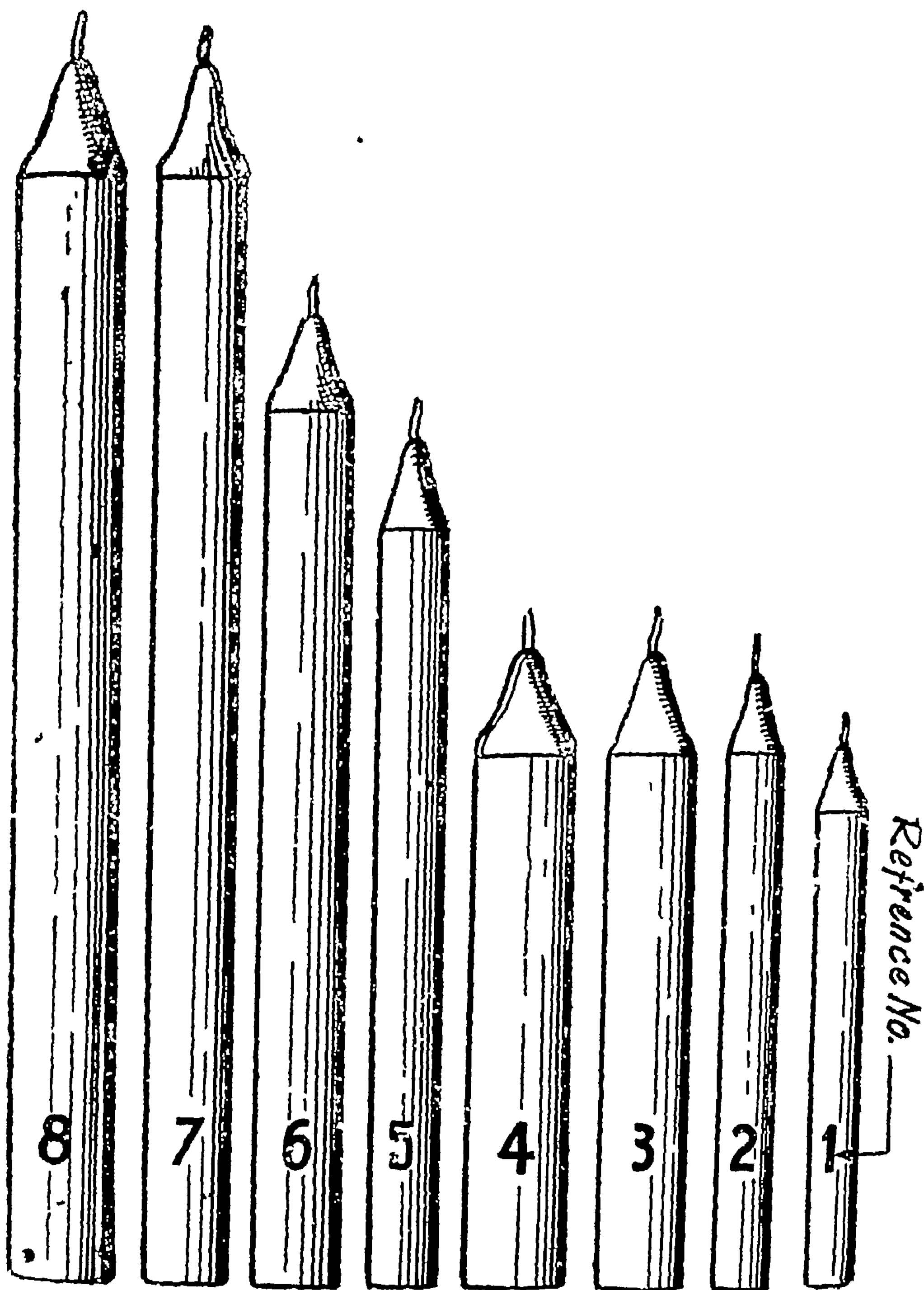
2 Cutting knives of foreign make 2 Cutting Sticks

Candle Industry

India is plain country 25% of her population is living in villages The Government of India is trying its utmost that the supply of electricity may be given to the villages But this task will take a lot of time The villagers and citizens who have no electricity are taking work from kerosine oil lamps and candles The kerosine oil lamps cost from Rs 5 to Rs 50 You know full-well that most of the people in India are poverty-stricken There are a few people out of the poor who cannot afford to buy a kerosine oil lamp that cost minimum Rs 5 to maximum Rs. 50 Therefore these poor people are taking the work of lighting their house mostly from wax candles Now this gives rise to doubt that whether there is any scope of this industry or not You can determine the scope of candle making industry by the fact that in every village or town, big or small every grocer, general merchants are dealing and selling the candles wholesale as well as retail Candles worth lakhs of rupees are manufactured and sold daily in India If this industry be unprofitable and unsaleable, nobody would be ready to start this business This has a large scale and this is an easy and profitable business

Does this Industry require an intelligent and expert person— There is no gainsaying that this is the easiest possible work that can be learnt within a very shot space of time Put the paraffin wax in the candle-making mould aud you will see that within a second the candle is manufactured This industry can be started with the help of small children and women. Hundreds of thousands of bundles are daily manufactured in India by the illiterate labourers, small children or women and this material commands a wide market in India

How much capital is needed for this Industry —You can start this business from Rs 50 to Rs 5000 You can perform this business from one candle-making mould If you want to start this business on a large scale, you can put 50 moulds


8
7
6
5
4
3
2
1
Refrence No.

into practice The quantity of capital to be invested depends upon the will of the industrialist If, the investment is huge, there is no doubt, the industrialist will reap a huge profit If the business will be started with a small capital, no doubt the profit will be small

Material needed for this Industry :- (1) Candle making moulds (2) Paraffin wax (3) Thread that is put between the wax. (4) Colour. (5) Packing paper (6) Labour

From where you can get all the things - The wax is of two qualities In English it is called paraffin wax and its melting point is 135° over 140° and 145°

Paraffin Wax -Wax is available from the following places (1) Burmah Shell Company. This company sells the petrol that is used in motor cars This Company manufactures the wax The offices of this company are situated in all the big cities of India , such as Madras, Bombay, Calcutta, Delhi, Kanpur, Nagpur, Allahabad and Ahmedabad etc

(2) It can be bought from the grocers' shops

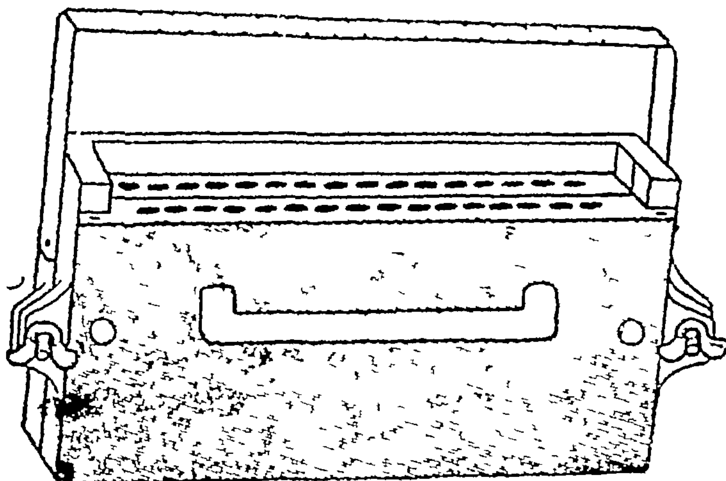
(3) You can buy wax from the scent and white oil sellers.

(2) **Candle-making mould** -These moulds can be had from Cottage Industry, New Market, Anguri Bagh, P B No 1262, Delhi-6

These moulds are of many types Such as, candle of one pice, candle of two pice, candle of one anna, candle of two annas and candle of three annas and in the same way the moulds are of various types and patterns 12-candle-making mould, 16 candle-making mould, 24-candle-making mould, 32-candle making mould, 64-candle-making mould and 128 candle-making mould are available The length and diameter of candles are also of various kinds Therefore the moulds should be bought according to choice and up to market varieties

Present prices of the moulds are given below God knows what would be the price when this book will be in your hands Prices remain always fluctuating.

Mould For Making Wax-Candles (Without Water Cooling Chamber)

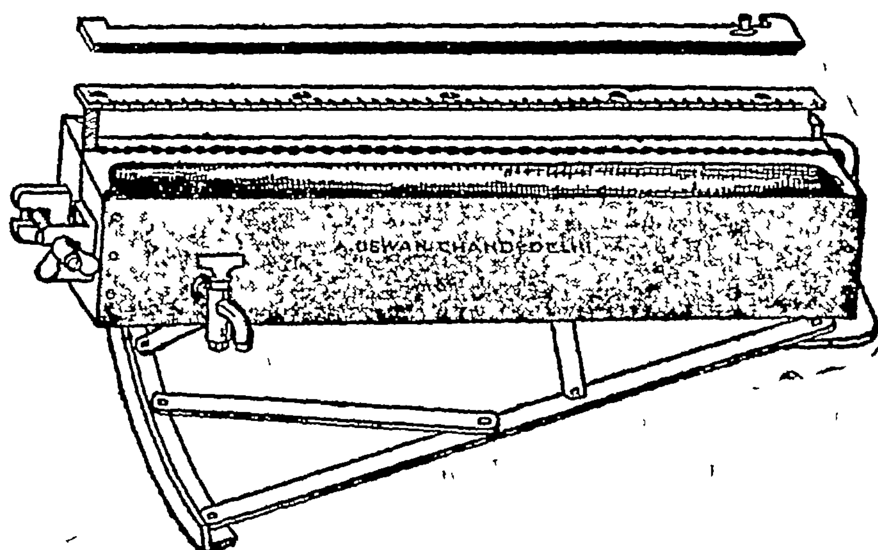


S. No.	Ref No with photos	No of candles which are made is one mould	Length of a candle in inches	Diameter in sut = $\frac{1}{8}$ inches	Price per mould in Rs
1	1	12	4	$2\frac{1}{2}$	40
2	,,	12	4	$2\frac{3}{4}$	42
3	,,	12	4	3	45
4	,,	16	4	$2\frac{1}{2}$	55
5	,,	16	4	$2\frac{3}{4}$	57
6	,,	16	4	3	58
7	,,	17	4	$2\frac{1}{2}$	57
8	,,	17	4	$2\frac{3}{4}$	59
9	,,	17	4	3	61
10	,,	32	4	$2\frac{1}{2}$	100

S No	Ref No with photos	No of candles that are made in one mould	Length of a candle in inches	Diameter in sut = ⅛ inches	Price per mould in Rs.
11	1	32	4	2¾	108
12	,,	32	4	3	112
13	,,	64	4	2½	200
14	,,	64	4	2¾	212
15	,,	64	4	3	222
16	,,	128	4	2½	420
16*a*	,,	128	4	2¾	440
17	,,	128	4	3	450
18	,,	12	5	3¼	47
19	,,	16	5	3¼	59
20	,,	32	5	3¼	116
21	,,	64	5	3¼	225
22	,,	128	5	3¼	434
23	,,	17	5	4½	105
23*a*	,,	12	5	3½	o5
24	,,	16	5	3½	65
25	,,	12	5	4	70
26	,,	16	5	4	75
27	,,	32	5	4	145
28	,,	34	5	4½	202
29	,,	68	5	4½	395
30	,,	17	5	5	99
31	,,	34	5	5	210
32	,,	68	5	5	400
33	,,	6	5	6½	53
34	,,	12	5	6½	104
35	,,	6	6	4	57
36	,,	12	6	4	102

S No	Ref No with photos	No of candles that are made	Length of a candle in inches	Diameter in sut = $\frac{1}{8}$ inches	Price per mould in Rs
37	3	6	6	$5\frac{1}{2}$	60
38	,,	12	6	$5\frac{1}{2}$	115
39	,,	6	6	5	65
40	,,	12	6	$4\frac{1}{4}$	105
41	4	12	7	$4\frac{1}{2}$	124
42	,,	12	7	$5\frac{1}{2}$	130
43	,,	6	7	$4\frac{1}{2}$	74
44	,,	12	7	$4\frac{1}{2}$	144
45	5	6	8	$5\frac{1}{2}$	75
46	,,	12	8	$5\frac{1}{2}$	145
47	6	6	9	$5\frac{1}{2}$	83
48	,,	12	9	$5\frac{1}{2}$	163
49	,,	6	9	6	88
50	,,	12	9	6	170
51	,,	6	9	$5\frac{1}{2}$	95
52	,,	12	9	6	179
53	,,	6	9	$6\frac{1}{2}$	101
54	,,	12	9	$6\frac{1}{2}$	199
55	7	6	10	$6\frac{3}{4}$	125
56	,,	12	10	$6\frac{1}{2}$	205
57	,,	6	10	6	115
58	,,	12	10	6	220
59	,,	6	10	$6\frac{1}{2}$	120
60	,,	12	10	$6\frac{1}{2}$	230

Wax Candle Making Machine with Water Cooling Chamber



Price (Packing and Postage Extre)

S No.	Ref No with photos	No of candles which are made in one mould	Length of a candle in inches	Diameter in sut=[illegible]/8 inches	Price per mould in Rs
61	1	50	4	2½	275
62	,,	50	4	2½	300
63	,,	50	4	3	325
64	,	50	4½	2½	295
65	,,	50	4½	2½	318
66	,,	50	4½	3	353

(3) **Thread used for burning in the candles** - This thread is made of cotton yarn It can be had from the cotton yarn sellers at every place

(4) **Colour-Used for making the coloured candles.** These colours are called oil colours in English i e , colours to be used in oils These colours are of various kinds, Green, red, rosy yellow etc colours are used for colouring the candles You may put the same colours as you want to give to the candle. Don't use either the colour that is used for eating purposes or the colour that is used for dyeing the clothes

How many candles are prepared within an hour —This depends upon the choice of the manufacturer If the manufacturer had a large number of candle making moulds, he can manufacture a large number of bundles of candles within an hour. If the quantity of moulds is less, less quantity of candles will be prepared

How many candles can be manufactured out of one pound of wax —

Ref.	Length in inches	Diameter in sut= $\frac{1}{2}$ Inches	No. of candles which can be manufactured with 1 lb wax
1	4	$\frac{5}{16}$—$\frac{11}{23}$—3	96—88—72
2	5	$\frac{13}{32}$—$\frac{11}{16}$—$\frac{13}{16}$	60—16—12
3	6	$\frac{17}{32}$—$\frac{9}{16}$	21—20
4	7	$\frac{17}{32}$—$\frac{9}{16}$—$\frac{11}{16}$	21—19—13
5	8	$\frac{21}{32}$—$\frac{13}{16}$	11—8
6	9	$\frac{40}{8}$—$\frac{11}{16}$—$\frac{13}{16}$	9—8—7
7	$9\frac{1}{2}$		$8\frac{1}{2}$—8—7
8	10	$\frac{3}{4}$—$\frac{13}{16}$	7—6

Method of purifying the wax - It has been seen that waste wax or broken candle or other wax that seems worthless and the people cannot make use of this wax and threw it as waste If this wax be purified it can be used just as the new one

Method of purifying the wax is as follows - Take one seer of wax and add two tolas of sulphuric acid and a little water to it and heat it on the fire so that all three things may be mixed in a very good manner Then take it down from the fire and cool it After cooling, the wax will float at the surface of the water and the dirty matter will settle at the bottom If at this time it is not purified in a good manner again keep the wax on the fire Bear it in mind that water must be added to the wax-containing vessel but there is no need of putting the sulphuric acid

Second Method of purifying the wax - In this all the method is like the above given method The difference is that in addition to sulphuric acid, 1 per cent of nitric acid should be added to the wax compound Heat it so much that the nitric acid will become vapours and fumes.

Third method of purifying the wax - The difference in it is that after putting the nitric acid and sulphuric acid Potassium bichromate and the sulphuric acid is added one per cent First of all, potassium bichromate is dissolved in the water It is heated to such a point that gas may disappear in the shape of vapours

Method of candle-making - First of all, take a piece of cloth and dip it in mustard oil or sesamum oil and lubricate all the holes of the candle-making mould with the oil so that the candles may not stick to the mould Now the thread be adjusted on the fixed place in the mould Put the wax required in a vessel and put this vessel on the fire As the wax melts pour it in a narrow-mouthed vessel and then from this vessel into the moulds When the mould is filled, put its lower part into the water After a little time, the wax will be hard into the shape of candle Now take out the mould from the

water, and cut the upper and lower thread with a knife Take out the candles from the moulds. Repeat this process again and again If you want to make coloured candles, the oil colour may be fastened in a small piece of cloth and put it in the melting wax and shake it That colour will mix with the melted wax. The coloured candle will be manufactured

(2) **How the fragrant candles are manufactured** —When the fragrant candle burns, the air of the room becomes fragrant and scented It gives a pleasing sensation to the mind. If you want to sell these candles at a higher price it will fetch a huge profit There is no need of great detail for it, only mix the scent to the melted wax according to your own choice. The remaining method is according to No 1. Five drams is sufficient for one pound of wax

(3) Method of manufacturing candles that can destroy mosquitoes or anticeptic candles —Wax one seer, Vaseline coloured one *ratti*, Eucalyptus oil one chhatak, Citronella oil ½ chhatak, Citric acid ½ chhatak Camphor oil 1½ tola Wax and citric acid may be melted in the vessel This compound may be added to the separately melted pure wax The remaining method is according to No 1 Where the candle will burn, the mosquitoes will run away from that place

Method of superior candle-making —This process of making superior candles is the same that has been already explained The things and materials that we are giving below should also be added in the melted wax This will bring about a great change in the values and virtues of the candle With the method we are going to describe, the fore-mentioned instructions should also be taken into consideration Wax 1½ seers, satreen (=citric acid) one seer First melt the wax and then mix satreen into it The remaining method is the same as already described.

Method of milk-like white Candle-making —Satreen 4 *chhataks*, Zinc oxide 2 tolas Melt wax and satreen and take a little out of it and mix zinc oxide in it and filter it with a thin cloth and mix this filtered material in the wax solution.

Manufacturing Different Colour-Giving Candles

Red Colour-giving

Paraformaldehyde	30 Parts
Paraffin wax scale	5 ,,
Lithium chloride	0 1 ,,
Menthol	0 2 ,,
Commarin	0 2 ,,
Lithium Nitrate	0 025 ,,

Blue Colour-giving

Paraformaldehyde	30 Parts
Paraffin wax scale	3 5 ,,
Copper chloride	3 5 ,,
Menthol	0 2 ,,
Commarin	0 2 ,,

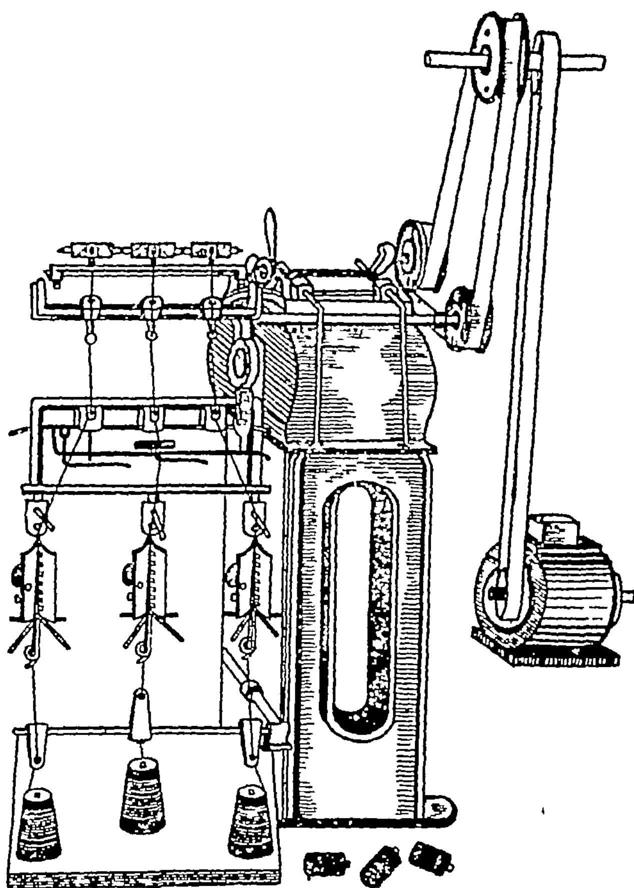
Green Colour-giving

Paraformaldehyde	30 Parts
Paraffin wax	3 ,,
Copper chloride	0 05 ,,
Barium Nitrate	0 4 ,,
Boric Acid	0 3 ,,
Menthol	0 2 ,,
Commarin	0 2 ,,

12% of barium nitrate can be dissolved in 2 parts of cold water and 3 parts of boiling water.

INDUSTRY OF SEWING THREAD REEL MAKING

The industry of cloth sewing is running on a large scale in India. The population of India is between 40 to 45 crores The thread is essential for sewing the clothes of every person Therefore the expansion of this business is possible The demand of thread for sewing the clothes is ever-increasing in small or big cities or in towns The small population creates small demand of thread There are two parts of this Industry In one part, only the thread for sewing the clothes is prepared and in the other part, the thread is rolled on the reels of cardboard Then it is sent in the bazaar for selling The first work can be performed with the aid of big reels The mills only sell the yarn manufactured by them. They neither prepare the reels of yarn nor sell manufactured reels The people living in other parts of the country buy the yarn from the mill and prepare reels of it and sell it in the market whole-sale or retail The industry of making thread reels is on the increase The people who are doing this work have set up many machines Many people have been engaged on this work and they are earning considerable profit out of it



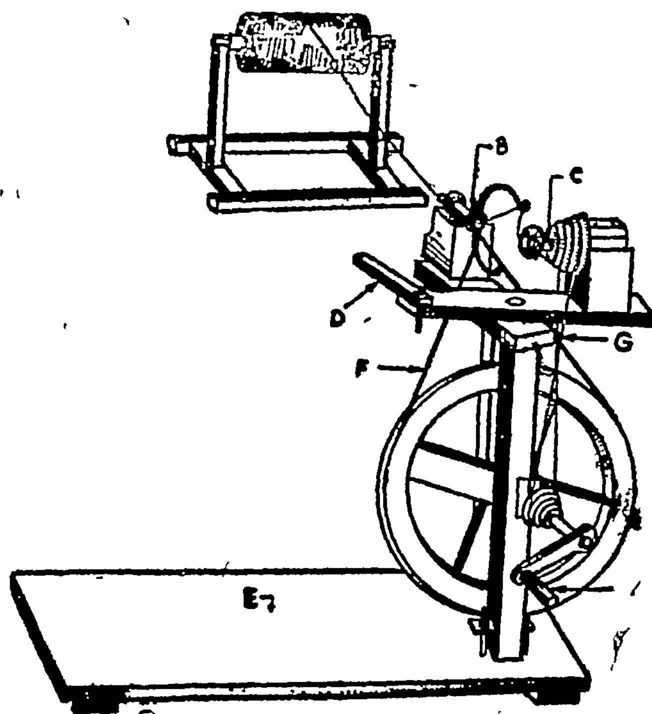
This thread is being prepared by many mills in India. Some of them are known as —Dawn. Dawn Martharized Sri Ram Mill Saidu etc This yarn can be had in 40 lbs. bundles The number of it is 30/2 The name of this yarn reel making machine is Sewing Thread reel making machine. The price of this machine is Rs 550 The picture of the machine is given on page 153 This machine can be had from Cottage Industry This machine is electrically driven You will have to use ¼ horse power motor. You can use A. C or D C. Electric current Both of them can serve the purpose. In this machine, three reels of different sizes are prepared at a time The size of the length of reels is 1½", 2" and 2½" You can prepare any size out of the three sizes. You can prepare three reels at a time The machine can make reels of 40 lbs. of yarn within 8 hrs The weight of these reels is 4 mashas, 10 mashas, 12 mashes and 14 mashas, *i e.* three reels can be prepared in a minute A huge profit can be reaped out of this industry, if carefully done The method of making the cardboard reels is very simple. These card-board reels are used for wrapping the thread.

Take a thick sheet of paper and paste it Then it is wrapped in a round shape The roundness should be so much as is desired When dry, cut them according to required size and make reels of it.

Thread Ball-Making

The aim of this industry is to prepare thread balls You might have seen the thread balls packed in cardboard boxes. Some thread balls are of small size and some are of big size The price of these thread balls is from 3 naye paise to 6 naye paise The consumption of the thread balls is very high These are used by the tailors, by the women who sew clothes at home, by the girls who does the embroidery work The people who do this work have set up 10 or 20 machines and the same number of men are employed for performing the work If proper attention be given to this work, and it be started very intelligently, no doubt, you would earn Rs. 200 or Rs 300 as monthly profit.

From where the thread ball-making yarn in available ?— These thread balls are made of vari-coloured threads , such as white, red, yellow, blue, green, rosy etc



All this yarn can be had from the yarn-spinning companies It can also be had from yarn-sellers in big and small cities. The profit can be gained from this work by two ways First profit is from thread balls and the second profit is from the yarn that you have bought from the market for thread ball-making.

You will charge a little higher price of the yarn plus the cost of production of thread ball-making plus your profit Snppose you have bought the yarn worth Rs 100

Therefore your cost price of yarn is Rs 100

You should sell it at a margin of Rs 25 i e in Rs 125 (cost pr ce+margin)

The cost of production = { Labour wages=Rs 2
Establishment charge=Re 1
Oiling of machine=12 n p
Depreciation charges=13 n p. }

=Rs 3 25 n p

Therefore your selling price should be (cost of production +your profit).

You should at least gain a profit of Rs. 25

Therefore your selling price of thread balls

=Rs 125+Rs 3 25+Rs 25

=153·25

Frankly speaking, if one machine can give you at least Rs 3 as profit, 10 machines can give you Rs 30 daily

How this machine works and from where it is available :— The shape of the machine is just like the machine as you have seen in the figure The prepared thread is hung with the help of the machine on a place in the machine The reel is fitted on the shaft of the machine. The thread is taken out of the nozzle of the machine.

The end of the thread is wrapped on the reel If you revolve the handle of the machine five or seven times, the thread ball will be prepared The thread ball is taken out of the reel and the preparation of the next thread ball is made By repeating the same process, you can make hundreds of thread balls within a day This machine is made of wood and iron It is of two kinds The wheel of one is made of iron whereas the wheel of the other is made of aluminium The price of the wooden wheeled machine is Rs 85 but the price

of the aluminium wheeled machine is about Rs. 95. The size of the thread balls can be changed by changing the scissors of the machine Such as 250 yards making scissors, 500 yards making scissors The price of these scissors is Rs 10 per scissor This machine along with scissors can be had from the Cottage Industry, P B 12C2, New Market, Anguri Bagh, Delhi Because the size of the machine is big The packing charges of it are about Rs 12 When the thread balls are prepared, they are separated from the reel. On one side of it the cardboard slip on which the name and trade mark of the company is printed, is attached One box containing one dozen thread balls should be packed and sent in the market for sale.

Toffee Industry

Start now and plan your Toffee Industry at home, sometimes you may have to wait several weeks before your Toffee machinery is delivered If this happens, please realize that it is not the fault of the manager of Cottage Industry who is doing his best to help you. On the other hand, nobody gains from speeding things up at the expense of durability and good mechanism There are many imitations of Cottage Industry Machinery, but we urge you not to make do with a substitute. Only the best is worth having, and every kind of machinery manufactured by the Cottage Industry is the best in the market

Method of Toffee making :—

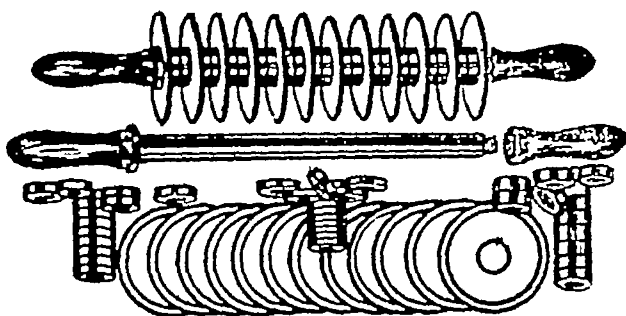
White Sugar	..	...	1¾ seers
Butter	..	...	¼ seer
Cream of Tartar	...	...	1 spoon
Water	...		1 lb (Ten chhataks)
Oil of Lemon	..	..	1 spoon

Method —Mix sugar into water and heat it in a cauldron When it dissolves, mix cream of tartar Now heat this mixture up to 300°F Take down the cauldron from the fire and mix butter with it little by little After it, again put the cauldron on the fire and mix oil of lemon with it After some minutes, the butter will melt and acquire a liquid form. Then take down the cauldron from the fire Put it into plates and spread it. Now cut this toffee compound into small pieces of uniform size with the aid of Adjustable Toffee Cutter

These Toffee pieces should be wrapped into beautifully coloured thin papers After it, pack them into specially designed tin boxes You can send them into the market for selling The detail of the toffee cutter is as under :—

Adjustable Toffee Cutters

This adjustable Toffee and caramel Cutter is for cutting up sheets of toffee etc into strips or small pieces The steel shaft is fitted with loose steel circular knives, between which wooden gauges are fitted to give the required width of cut



These are locked in position by end nuts The price of this machine is for 12 Blades Rs. 105 00, for 16 Blades Rs 140.00

Second Method of Toffee making —Sugar Candy=6 chahtaks Cream=3 chhataks, Fresh Milk=2 chhataks Each thing should be mixed with water together Now heat this mixture on a low temperature When its compound is prepared and bubbles appear When it sticks to the finger, then it is ready Take it down from the fire Shake it so much with a wooden ladle so that it may acquire a thick and white shape Then mix with a spoonful of venilla essenee or any essence required should be added and heat it for two minutes on fire Paste some lubrication on a shallow plate and pour the compound in it. When it acquires a solid shape after cooling, cut it into pieces with the aid of Adjustable Toffee cutter One piece should weigh at least one masha Wrap one piece in coloured polished paper and twist its upper corners. You can buy Toffees from the Bazar and observe its shape and design etc

Third Method of preparing Toffees:—Raw coconut=½ seer Sugar ¾ seer Coco=four spoons. Cream=½ cup. Make powder of the coconut and divide into two parts. First ¼ seers

of coconut powder should be cooked in 6 chhataks of sugar. It should be cooked into a copper vessel and shaked The compound acquires a consistent shape. Pour it on plate that is already lubricated with Ghee or oil. Spread it with a knife After it, the remaining coconut and sugar should be mixed with a little quantity of water. Put this mixture on the fire. After a little while, add coco and cream and cook it thoroughly When it acquires a consistent shape, put it on the first solified compound Spread it with a knife and then roll it smooth with a roller and cut its square pieces with Adjustable Toffee cutter till it is hot.

Lozenges

ENGLISH-TYPE SWEETMEATS

This business, is very significant and useful You can determine the utility of this business by the business of J B. Mangharam, Peri sweet, Marshal sweet You will have to pay a visit and inspect the business of the businessmen dealing in this industry. These people daily prepare the sweetmeats worth lakhs of Rupees They get a huge profit There is great scope and demand for the sweetmeats As much material is prepared, is sold within an instant and still the demand exists for further supply, *i e.*, the cost of production is less than its price, therefore there will be a huge profit to the producer. The income will increase day by day. You will find that the supply side will not be able to meet the increasing demand of the public. The better the quality, the greater will be the profit to the producer If the quality will not be up to the requirement of the customer, the profit will be less You can start this business with a machine of Rs 25 This *business can also be undertaken with Rs 300 or Rs 1000* and even lakhs of Rupees can be invested in this business The detail that will be given below, will be for starting the business on a small-scale If you want to extend your business, this depends on your own choice. To start this business, the following machines and vessels and materials are needed

1 **Fire oven or furnace**

2 **Small cauldron** —A small cauldron pan made of iron, which is used for melting the sugar.

3. **Rubber gloves** —These can give you a great help in taking down the pan from the fire oven

4 **A tank for water** —It should contain water at all times so that the sugar compound may be cooled

5 **An iron plate** —This is kept for covering the mouth of the tanki. The water touches its lower surface The hot sugar compound is put into it

6 **Sweetmeat-making machine** —There is a wooden table on which this machine is fitted. There should be a sugar meter to take at once the temperature of the hot sugar compound

7 **Four or five tin plates** —These are meant for putting sweetmeats after spreading the Maize starch i e', first of all, the Arrowroot or Maize starch is spread on the surface of the plates. Then the manufactured sweetmeats are put into these plates

This is a small detail of the goods and materials needed. It can be increased or decreased according to requirement

Qualities of Sweetmeats —These sweetmeats are of two kinds (1) The first is soft and shining This is called the (Glucose Sweet). The second kind of sweetmeats can be manufactured from sugar only These are not manufactured from Glucose Sweet

The former is sold at higher rates while the latter is sold at lower rates There is a little difference in the manufacturing process of two kinds of sweetmeats.

Varieties of Sweetmeats —You will have to see the sweetmeats in the market The sweetmeats are of different kinds but its varieties that are generally prevalent in the market are as follows —

(1) Big orange, small orange (2) Big fish small fish (3) Banana, Almond, Mango, Rasp-berry round piece tablet form, square form, two anna piece shape, four-anna piece shape, Rupee-like round shape, egg-like shape, etc

Material for manufacturing Sweetmeats —(1) Sugar, (2) Glucose (3) Essence and (4) Colours are used in the manufacture of sweetmeats

1 **Sugar** —This is of two kinds (1) one is crystal sug (2) The other is powder sugar. On the one hand, the powd form sugar is of somewhat dust colour, on the other hand, contains a great quantity of molasses Therefore crystals sugar should be used in the manufacture of sweetmeats

2 **Glucose** —This is also of two kinds. One is that which is white just like sugar It is given to the children in medicine etc This glucose cannot be used for confectioning sweetmeats This Glucose is a kind of Grape-sugar or dextrose. It is commercially prepared from starch and other carbohydrates.

The second glucose is thick like honey The mills that produce maize starch, produce this kind of the starch This is cheap in rate This is available in every small or big city This is used for making the sweetmeats Because there is no roughness and hardness like sugar It is very soft and delicious to taste. The sweetmeats that contain it are soft and shining. It is mixed in relation to the standard or quality of the sweetmeats Chemically it is a kind of soluble sweet-tasting fermentable carbohydrate divided according to their composition into glucoses and saccharoses

Colour —The colours that are used for manufacturing the sweetmeats are called "eating colours" These colours differ from those colours that are used for dyeing purposes These colours are probably fragrant and sweet in taste Sometimes these colours are used in confectionery usually consisting chiefly of sugar or chocolate The long and short of it is that these colours are used for eating purposes These colours are also of two qualities (1) Interior quality, (2) Superior quality The superior quality should be used in manufacturing the sweetmeats

Essence —Every essence is fragrant. When you eat the sweetmeats or lozenges, you feel some fragrance It is the charm of the essence Lozenges, as you know, is a small tablet of flavoured sugar etc., that can be dissolved in the mouth very easily. It contains an essence which gives delicious and fragrant taste and smell

Sugar meter or thermometer for taking the temperature of the sugar compound—This instrument tells us that the sugar compound is ready for use or not By the aid of this meter, we take the temperature of the sugar compound and know the consistency of the sugar compound This is an essential thing for this business. This is manufactured by foreign factories Its capacity is 400° to 600°. Its full use will be explained in the manufacturing Method.

Machines—The following machines are needed for this business :—

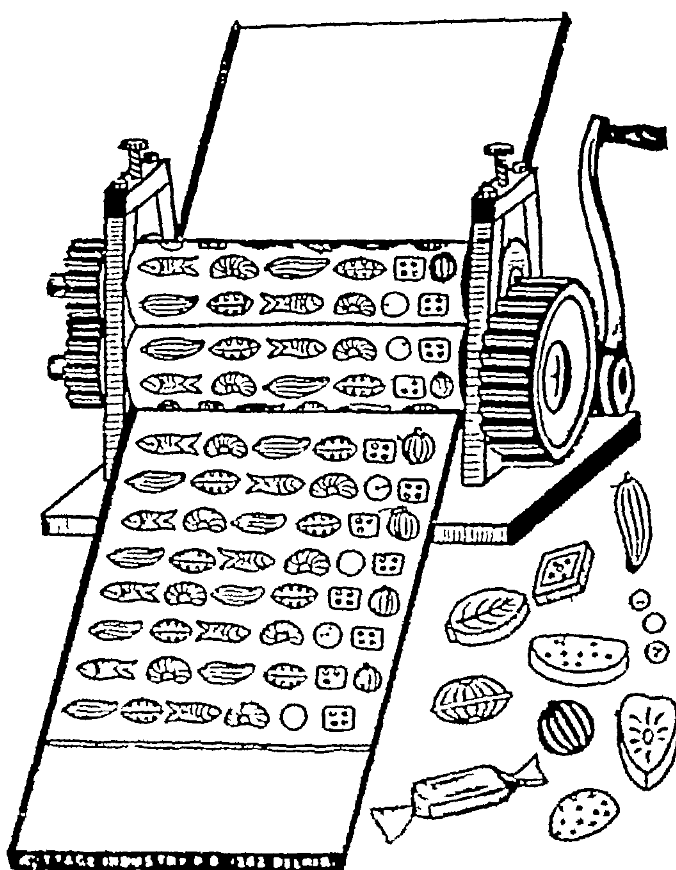
1 Lozenges machine—This is a machine for manufacturing the sweatmeats

2. China-ball-making machine

3 A press for making the sweetmeats without a joint

4 Lally Puff making Machine

5 Pepper-mint making Machine



(1) Lozenges *Sweetmeat making machine* —

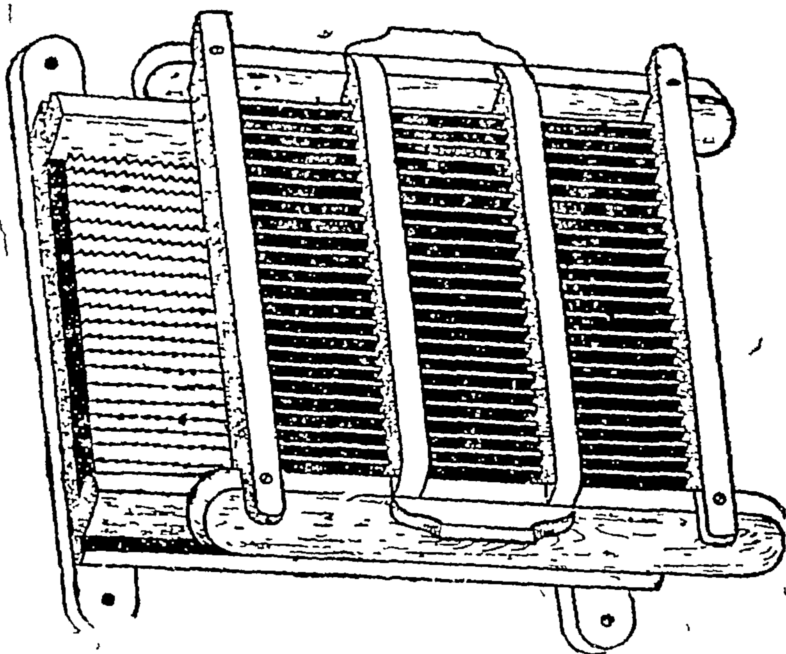
You are seeing the given figure. It shows the style of the machine. It

is made of gun metal. It contains two rollers made of gun metal You can make every kind of sweetmeats according to your own sweet will

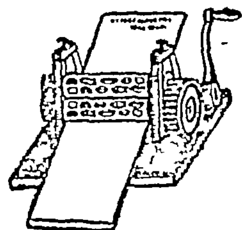
Each variety can be prepared by this machine The length of this roller is 7" and diameter is 2¼" If you want you can get one sample or seven samples engraved They can be prepared of every kind

This machine is complete with ball bearing, double brass, nickle plate Its price is about Rs 350

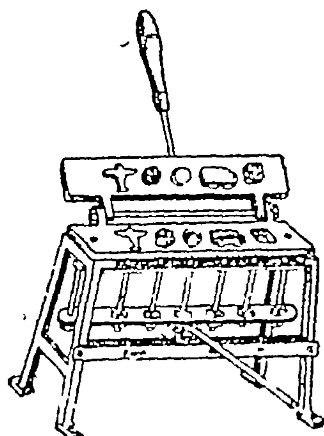
(2) **China Ball-making Machine**—With the aid of this machine striped China ball are manufactured. These resemble



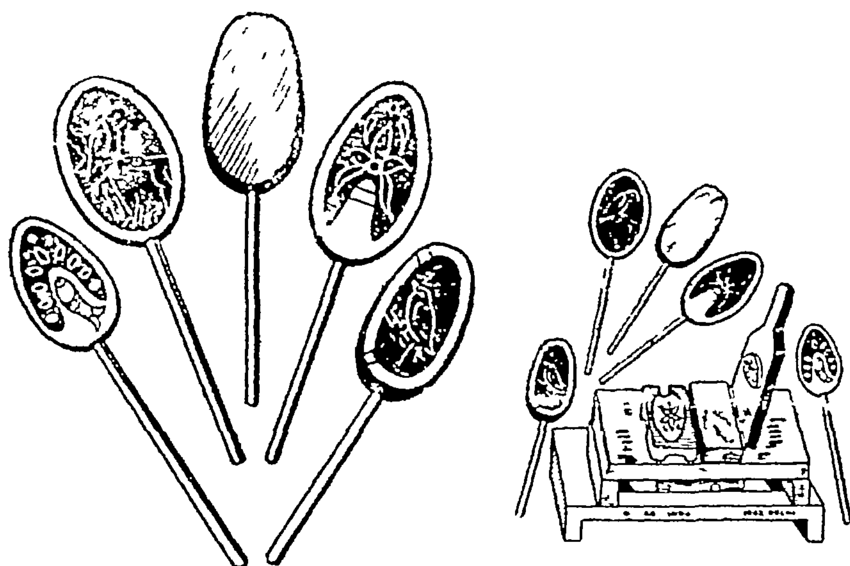
a melon in shape This machine is of diameter 3,4,5,6, of an inch This machine is made of wood and its axes are made of steel The price of this machine is about Rs 75 to Rs. 90. The figure of the machine is given



(3) Press for making sweetmeats without a joint—The machine shown below manufactures such a sweetmeat, which if minutely examined, it appears that one piece of sweetmeats which will be manufactured with this machine will be without a joint No question of joint will arise here It has its own shape The price of this machine is Rs. 180

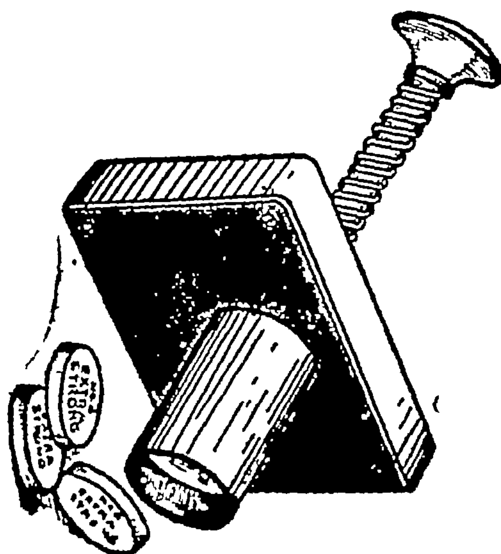


(4) **Lally Puff makine maching.**—You might have seen that children suck a sweetmeat stuck to one end of a wooden splinter. This sweetmeat is manufactured by the aid of this machine When the sugar compound is ready, it is placed in such a plate whose lower surface is being heated A little matter out of this sugar compound is put in this machine



and on this a thin stick is placed and the handle of the machine is pressed The mass of sugar catches the stick tightly At once the bat-like sweetmeat with thin stick attached to one side is manufactured The price of this machine is Rs 35.

(5) **White Peppermint Making Machine** —White table whose diameter is equal to the diameter of an eight-anna piece It is



called Extra Strong sweet. It is generally seen selling in the market This sweetmeat is manufactured only with the aid of this machine. You will study later on how it is manufactured The figure of the machine is before your eyes The price of this machine is Rs 18. You can buy all these machines for manufacturing the sweetmeats from Cottage Industry New Market, Anguri Bagh, (K-8) P O Box No 1262, Delhi-6

Method of manufacturing the sweetmeats —I imagine that you know little about it There is a method with a quantity of the material is being described to you Put four Chhataks of sugar in a small vessel Now this vessel is placed over the fire You have read something about sugar meter It resemble with a thermometer It is an instrument for measuring the temperature Usually it is a glass tube with small bore containing mercury or alcohol and variously graduated It has a hole for fastening a thread at the time of taking the temperature of the hot sugar compound With its help the boiling point and preparat on of the sugar compound is found out

It is about 10 inches long. It is kept suspending in the sugar compound after fastening a thread to its one end. The end containing mercury should remain dipped in the sugar compound. As soon as the sugar compound begins to boil, the mercury of the sugar meter begins to rise in the tube The sugar meter is graduated from 10° to 300° or 400°. When the mercury rises upto 310 degree, take away the vessel from the fire. Pour this sugar compound in the iron plate which is

placed over the water tanki. The full detail of this iron plate has already been given When it becomes half cold, flatten it with the help of your hand. Sprinkle arrowroot or maize starch The sweetmeat making machine whose full detail you have studied in No 1 Arrowroot is a kind of plant from which a nutritious starch is prepared This arrowroot or maize starch is spread on the rollers so that the sweetmeat may not stick to the rollers The flattened sugar compound may be pushed forward in the machine and the machine should be revolved energetically and actively The machine will give rise to a sheet of sweetmeat When the full sheet comes out of the machine, put it in the arrowroot or maize starch sprinkled plate Move this sheet after a little while The grains of sweetmeats will become separate Now you can use it. The following instructions should be borne in mind.

(1) When you mix water with sugar, you can mix the colour at the same time The quantity or colour depends upon your own will If you want to give a fast colour, you will have to put more colour

(2) **Essence or fragrance** —When the sugar compound becomes a little hot, then the essence is mixed The quantity of the essence also depends upon your own will There is no hard and fast rule for it.

At the very outset, when you put water and sugar in the vessel, also mix cream of tartar at the account of 1¼ *masha* after every seer of sugar It will help in melting the sugar crystals to clear Cream of tartar is purified and crystallized bitartrate of potassium, used in sweetmeats, etc.

(4) If you intend to manufacture sweetmeats of the superior quality, mix Liquid Glucose instead of cream of tartar

(5) Some lubricant oil should be applied to the surface of the iron plate which is lying over the water tanki Mustard oil or *til* oil should be used because both of them can be used for eating purpose. The application of the oil do not let the

sugar compound stick to the surface of the iron plate Sugar meter is available with Cottage Industry, Angoori Bagh. P B. 1262 Delhi-6

Method of making the White Peppermint —Grind one seer of white sugar in the grinding-stone One seer of ground sugar and four *chhataks* of maize starch may be kneaded together and peppermint scent should be added to this kneaded mixture according to your own will Now flatten, spread and smoothen it with roller in a plate Spread some arrowroot on the surface of wooden plank before putting the matter on it If you will use less quantity of arrowroot, whiteness will not appear on the peppermint Arrowroot is a plant from which a nutritious starch is prepared.

Keep such a thickness by rolling with the roller as you want to keep the thickness of the tablet Now cut the tablet with the help of a peppermint cutter The work of this machine is two-fold On the one hand, it makes the tablets on the other hand, it prints the numbers. When the tablet is dry, you can put it into use

The method of china Ball making —The method, already studied, you should keep in view at the time of making china ball of any kind. Put colour according to your own choice into a little quantity of sugar compound When five or six separate coloured sugar compounds are prepared, after half cooling of these sugar compounds put them together and expand it like a rope Then cut this sugar-compound rope into the shape of small pieces and put them into the machine Revolve the upper part of the machine. China ball or melons will be ready of their own accord The same process may be repeated again and again

How the sweetmeats are prepared in the Press -Small pieces of half cold sugar compound are cut with the help of a scissor, These pieces should be of the same size as can be easily put into the dies of the machine After putting these pieces in the dies, it is pressed from upper side with the help of the machine Within an instant, the sweetmeats will be ready.

Ink Industry

Ink is an essential part of our life. Every person has some connection with it Its Consumption cannot be estimated But there are lakhs of big and small schools and colleges Lakhs of students are getting education through these colleges and schools Every student needs ink In this way, ink is sold worth lakhs of rupees daily. In addition to schools and colleges, ink is used in offices and shops No work of writing and reading is possible without it There are many factories that are chemically manufacturing ink These factories cannot meet the demand of the country. Therefore ink is also imported from foreign countries The ink manufacturing companies are selling ink worth lakhs of rupees and are earning thousands of rupees If you will do this work after thinking over the pros and cons, you can earn considerable profit.

Ink is of two kinds

You might have seen that the shopkeepers sell two kinds of Ink One is sold in liquid form filled in glass bottles The other is in the shape of tablets The liquid ink is made of many different colours such as, Blue black, red green, yellow and purple etc The tablets of ink are of two kinds only such as blue black and red The method and raw material of making both kinds of ink are different First of all, we are telling you the method of Ink Tablets making in a full detail

What material is used for making blue black ink Tablets —

You are required the following things for the ink tablet making —

Dextrin No 2 mythin blue 2 B Cans colour No 3, Violet

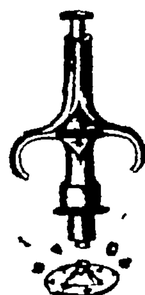
colour, No 4, Tablet making machine, No. 5 Tin boxes in which the tablets are packed for selling, No 6 The cardboard boxes in which the tin boxes are placed.

Dextrin—Chemically, dextrin is a soluble gummy substance which is obtained from starch and used on adhesive stamps, inks etc It is a kind of white flour Its test is that if you take a little of the dextrin in your hand and wet it and rub it with your fingers, you will feel a kind of gum-like substance If there is no stickiness, it is not pure dextrin. The dextrin is of two kinds One is yellow and the other is white The yellow contains more stickiness than the white one. The companies who are preparing Maize or starch the same companies are making dextrin These are packed in one hundredweight sacks The shopkeepers who deal in chemicals are also selling dextrin There are many companies who are preparing dextrin in India.

Violet Colour and Methyline Blue 2 B Cans colour—Two kinds of colours are used for making the tablets of ink One is violet colour and the other is Methyline blue 2 B Cans colour Voilet colour is used for colouring the dextrin and the methyline blue 2 B Cans colour is used for polishing the ink This colour is very strong It increases the value of the ink. If you use violet colour of inferior quality, there is no harm in it Methyline blue 2 B Cans must be brought from Imperial Chemical Industry, India Ltd, or from their agents This company is foreign The colours of this company are best in the market everywhere in India These colours can be had packed in 1 lb tin box or packets. The method of using these colours will be given later on.

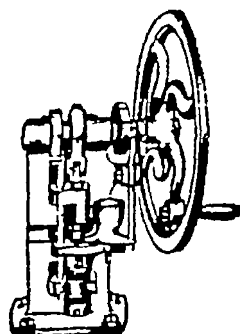
Tablet-Making Machine—The tablet making machine is of great importance for the ink making factories These machines give shape to the inks. It gives beauty and lustre to the ink. We can make big and small tablets with the help of this machine The workers who handle the machines should be such as have full knowledge about the machinery. Without technical knowledge or training, it is very difficult to operate these machines The worker who is not fully

acquainted with the technicalities of the machine cannot work at this machine The most important thing about it is that the full information about the machine should be got from the workshop or factory from where the machine may be bought. With the aid of this machine, the tablets of salt-petre and medicines can also be formed. The companies that make tablets of ink also use tablet-making machines These machines are of three types.



The figure of the smallest machine for tablet making is before you This machine is not used for making tablets of ink. This is useful for Vaidyas and Doctors who run their dispensaries on small scale No doubt, it is very useful for these Vaidyas and Hakims. Because it proved useful in meeting their demand. With this machine two sets of die-punch are taken. The price of this machine is about Rs 22 The weight of this machine is 15 or 20 tolas

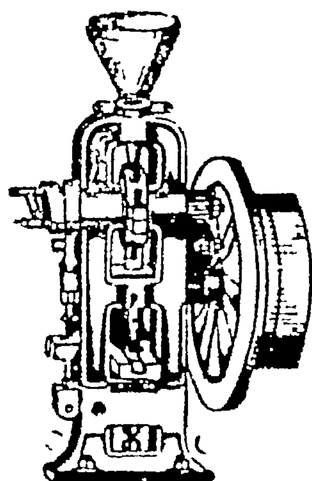
Tablet-making hand-driven machine—With the aid of the



machine, you can make small or big tablets of ink very easily There is such arrangement that you can set one die and take out the previous one. The small and big tablet die can be set in this machine There is no extra die punch with this machine You can make every kind of tablets with the aid of this machine The ink industry on a small scale can be started with this machine. The price of this machine is about Rs 375 There is only one set die punch which is inside the machine With the aid of this machine, you can prepare 20 seers of tablets about in eight hours with the aid of this machine

Tablet-making machine which is electrically operated—This machine can be operated electrically as well as manually.

If the operator is an intelligent worker, he can make four maunds of tablets in eight hours with this machine electrically driven The weight of this machine is 6 or 7 maunds Two-horse power electric motor is required to operate this machine price of this machine is from Rs 850 to Rs. 1000 The ink making factories who want to start their work in a large scale can take advantage from this machine. All these machines can be had from Cottage Industry, P B No 1262, (K-8) Anguri Bagh, New Market, Delhi



Tin boxes and cardboard boxes—If you want to perform this business on a large scale and on scientific lines, you had better get prepared small tin boxes that can contain one gross of tablets and get your name and address printed on the tin boxes from tin-printing factories This adds to the beauty of the goods and their market value is increased and consequently the demand of the goods is increased. The shopkeepers take pleasure in buying beautifully packed inks The goods packed in these boxes can be transported from one place to another place very easily and there is no likelihood of breakage and wastage of the goods The price spent on these tin boxes will be added to the price of the the goods. There is no harm to the company on account of these packing boxes but there is a scope of profit Cardboard box which contains about one dozen of tin boxes is also an essential part One the one hand it protects the goods on (the other hand it adds to the beauty of the goods. One more advantage is that the goods reach in the hands of the customers without any harm The foreign businessmen spend lakhs of Rupees in beautifully packing the goods. They consult many experts for making their designs. They prepare many kinds of samples before They think

deeply over these samples and choose the best one according to their version They sell that sample into the market and try to circulate that sample.

This is the main cause that these people are earning lakhs of Rupees. If you will walk on their foot-prints, no doubt, you will also reap a high profit in your business.

Method of making blue black tablets —I imagine that you know nothing about inks, therefore I shall make you understand as a teacher teaches A, B, C, to his students As you have already studied in the **dextrin** heading that dextrin is of two kinds One is white and the other is yellow For experiment, at the beginning, you should make a small quantity of ink. When you succeed in your exprıment, you can make any quantity of ink you like Take 12 chhataks of white dextrin and mix with it 4 chhataks of yellow dextrin Mix these two dextrins so thoroughly as to make them homogeneous Take some water into another pot and put ½ tola of

violet colour into it and mix it thoroughly Now pour this coloured water into the dextrin and rub the dextrin with the hand All the water will be put into it and it will require the shape of blue coloured grains Our aim is to change this flour-like dextrin into barley cereal When it acquires the shape of barley-cereal, put it in the sun for drying When these cereals become dry, sieve them through such a sieve from the holes of which can pass the barley like cereals The remaining material should be powdered again and give them the shape of barley grains and sieve them so as to separate barley like grains These barley like grains are of ink Now sieve them through such a sieve through which barley like grains cannot pass but the flowers or small particles will

pass through the holes of the sieve This flour can be changed into the shape of ink by mixing it with the colouring water. Now put all the material into a flate vessel and sprinkle water over it with a syringe so as to give it some dampness It may not become so wet as to acquire the shape of a dough or coagulated material The purpose of dampness is that we want to give another colour to the ink grain If there will be no dampness in the grain, it will not catch the colour, therefore the quantity of dampness should be very little Now take such a round drum whose both sides are fitted on a stand and the body is in the centre so that its body may be rotated by revolving the handle Now this ink grains may be put in the drum for polishing and put methyline blue 2 B Cans colour 3 tolas after every seer of ink grains. Put this drum into the shady place and revolve it continuously for an hour If you will not put this drum into the shade and will put it into the sun, dampness will become dry and the colour will not appear at the ink grain, therefore the drum should be put into the shady place. After revolving the drum continuously for an hour, you should lift the lid from the mouth of the drum and examine that the blue coloured ink grains have changed into the red colour. Now this ink grain is ready. You can make the tablets of it Rotary Tablet Compressing machine is kigen on Page 131 For tablets upto 1" Output 20,000 tablets per hour Power required 2 B H P variable speed drive Price Rs 13000

The tablet-making machine should be fitted on a foundation The foundation should be one foot high above the level of the earth It should be made of cement and concrete Fix four 1¼ long screwed bars in the wet foundation according to the holes of the base i e, fix them into the earth The machine will be fitted on these screwed-bars Therefore it is essential that these bars should be fixed at the time of making the foundation and the machine should be fitted over this. If you want to make small ink tablets you should fit the small tablet making die in the machine. If you want to make big ink tablets you should fit the big tablet making die in the machine Lubricate the machine at the proper place so that the machine may become light Take out some of the polished grains of ink from the polishing drum and put it into the

feeder of the machine. Revolve the wheel of the machine a little Fit it at the proper place where the tablets are made in a proper manner. If the machine is electrically driven, switch it on and put the ink grains into the feeder The tablets will fall of their own accord below the machine Put a vessel below the machine for collecting the tablets so that tablets may not be disfigured by falling on the ground. Thus you can prepare as many tablets as you like

The method of making tablets of red ink —As you mixed the two dextrins with the blue black ink for making the blue black ink tablets and put the blue black colour in them and make its grains dry and sieved them, the same process can be applied for making the tablets of red ink. The difference is that you mixed the violet colour with the dextrin *i. e*, blue colour was mixed at the time of making the tablets of blue black ink, now the scarlet colour *i e*, red colour will be mixed because we want to make the tablets of red ink The second difference is this that after making the ink grains damp, you should add croshion scarlet colour *i. e*, a colour that is used for polishing the red ink The tablet making process is the same as was used for making the tablets of blue black ink The remaining process is the same as was applied for making the tablets of blue black ink

Note —Sometimes at the time of making the tablets in the machine, some part of the powder remains in the punch of the machine which hinders the progress of the machine As far as this matter is not cleared from the machine, the tablets will not be made The remedy of this is that when the grains are somewhat polished, put ½ tola of kerosine oil with it so that the material may not stick with the punches of the machine The experienced hand machine-men can set this work of their own accord.

The method of making blue black crystals.—You might have seen, that stationers sell the small packets of blue black ink. These packets contain blue black ink in the shape of crystals. The method of making it is this. Take gum of acacia (**Goond Kikar**)) in a purified form. Take one seer of acacia gum and put it into a big vessel and put half seer of water in it. It should be mixed at night After twenty four

hours this gum will dissolve into water. Filter it through a sieve and keep it into another vessel Our purpose of sieving it is this that we want to remove every kind of impurities from the gummy water If you want to make black crystal, mix four chhataks of black carbon that is imported from America.

Stir it for six hours continuously so that the colour may become homogeneous If you want to make its colour very fast You should put into a water containing vessel, four chhataks of **harar**, four chhataks of **Amla** and four chhataks of **Bahira** These three things are called malabolin in English The next day the water of this mixture should be filtered and added into the already prepared gummy solution and stir it thoroughly for two or three hours Now this will acquire the shape of a thick mixture Put it into a big vessel and place it into the sun for drying. After four or five days it will become dry. When it becomes dry, powder it and filter it through a sieve The sugar-like grain may be kept separate because that is for your use The remaining matter that is in the shape of flour can be again given the same shape by the same process Pack it and send the packets of ink for selling into the market

Note —If you want to make blue black crystal, you can add 3 tolas of violet colour after every seer of the mixture instead of black carbon. The water that is to be added into **Harar, Bahira, Amla** should be double the quantity of these three things

Method No. 1 of making blue black liquid ink —This ink is packed into bottles into a liquid form.

No 1, **Harar**=12 tolas, **Bahira**=12 tolas, **Amla**,=12 tolas, **Majo**=6 tolas, **Kasis**=12 tolas **Loh Churan** (Iron oxide or iron dust)=12 tolas

All the above things should be soaked into a water containing iron cauldron for four days. Heat it on the fire after four days When three fourth of the water is evaporated, take it down from the fire and make it cool. Fill it into the bottles It is a very good ink

No 2 Blue Ink :—Blue colour=2½ tolas, Dextrin=10 parts, acid vinegar=49% one part, Methylated spirit=5 parts, Water=two parts

feeder of the machine. Revolve the wheel of the machine a little. Fit it at the proper place where the tablets are made in a proper manner If the machine is electrically driven, switch it on and put the ink grains into the feeder The tablets will fall of their own accord below the machine Put a vessel below the machine for collecting the tablets so that tablets may not be disfigured by falling on the ground. Thus you can prepare as many tablets as you like

The method of making tablets of red ink —As you mixed the two dextrins with the blue black ink for making the blue black ink tablets and put the blue black colour in them and make its grains dry and sieved them, the same process can be applied for making the tablets of red ink. The difference is that you mixed the violet colour with the dextrin *i. e*, blue colour was mixed at the time of making the tablets of blue black ink, now the scarlet colour *i e.*, red colour will be mixed because we want to make the tablets of red ink The second difference is this that after making the ink grains damp, you should add croshion scarlet colour *i e*, a colour that is used for polishing the red ink The tablet making process is the same as was used for making the tablets of blue black ink The remaining process is the same as was applied for making the tablets of blue black ink

Note —Sometimes at the time of making the tablets in the machine, some part of the powder remains in the punch of the machine which hinders the progress of the machine As far as this matter is not cleared from the machine, the tablets will not be made The remedy of this is that when the grains are somewhat polished, put ½ tola of kerosine oil with it so that the material may not stick with the punches of the machine The experienced hand machine-men can set this work of their own accord.

The method of making blue black crystals.—You might have seen, that stationers sell the small packets of blue black ink These packets contain blue black ink in the shape of crystals. The method of making it is this Take gum of acacia (**Goond Kikar**)) in a purified form. Take one seer of acacia gum and put it into a big vessel and put half seer of water in it. It should be mixed at night After twenty four

hours this gum will dissolve into water. Filter it through a sieve and keep it into another vessel Our purpose of sieving it is this that we want to remove every kind of impurities from the gummy water If you want to make black crystal, mix four chhataks of black carbon that is imported from America.

Stir it for six hours continuously so that the colour may become homogeneous If you want to make its colour very fast You should put into a water containing vessel, four chhataks of **harar**, four chhataks of **Amla**, and four chhataks of **Bahira** These three things are called malabolin in English The next day the water of this mixture should be filtered and added into the already prepared gummy solution and stir it thoroughly for two or three hours Now this will acquire the shape of a thick mixture Put it into a big vessel and place it into the sun for drying. After four or five days it will become dry When it becomes dry, powder it and filter it through a sieve The sugar-like grain may be kept separate because that is for your use The remaining matter that is in the shape of flour can be again given the same shape by the same process. Pack it and send the packets of ink for selling into the market

Note —If you want to make blue black crystal, you can add 3 tolas of violet colour after every seer of the mixture instead of black carbon The water that is to be added into **Harar, Bahira, Amla** should be double the quantity of these three things

Method No. 1 of making blue black liquid ink —This ink is packed into bottles into a liquid form.

No 1, **Harar**=12 tolas, **Bahira**=12 tolas, **Amla**,=12 tolas, **Majo**=6 tolas, **Kasis**=12 tolas **Loh Churan** (Iron oxide or iron dust)=12 tolas

All the above things should be soaked into a water containing iron cauldron for four days. Heat it on the fire after four days When three fourth of the water is evaporated, take it down from the fire and make it cool. Fill it into the bottles It is a very good ink

No 2 Blue Ink :—Blue colour=2½ tolas, Dextrin=10 parts, acid vinegar=49% one part, Methylated spirit=5 parts, Water=two parts

Mix colour into half water. Then mix citric acid (or acid of vinegar). After it mix spirit and cicylic acid into the mixture. At the end, mix the remaining water and shake it thoroughly and filter it into the bottles

Red ink for fountain Pen —Rayosene=7½ grams, crosine scarlet I C I=4 grams, Gum of acacia=9 grams., carbolic acid =1½ cubic centimeter, Glycerine=one cubic centimeter, water =11, 12 cubic centimeters Every two colours should be mixed in half quantity of hot water Mix the remaining things into the remaining water Mix it into the already prepared mixture Filter it within a week After a week pack it and send into the market for selling

Method of making dry black ink :—

Powdered Majoo=10 parts, Upper portion of Amla=4 parts' Kajal (lamp black)=4 parts, powdered Kasis=3 parts, Gum=2 parts, water=50 parts.

First dissolve majoo into the water and put it on the fire When half of the water is evaporated by the heat of the fire, take it down from the fire Stir it into a very good manner by putting all the remaining things When it becomes homogeneous, put it on splinters for making it dry This is your dry black ink.

Ink of green colour —Extract of Lemon (Tatri)=one part, copper oxide blue vitroil (nela thotha)=2 parts, water =8 parts

Boil all these things by mixing them into water so as to make them thick according to your own choice Now ink is ready, fill it into bottles

Ink of yellow colour —Yellow colour=½ chhatak, Arabian gum=4 mashas, Alum=2 mashas, water=2 seers.

Dissolve yellow colour into the boiling water into a very good manner. Mix powdered gum into it. After twenty four hours filter it and fill into the bottles

Method of Golden Ink —Leave of gold=one part, pure honey=one part, Gum acacia=2 parts, water=2 parts

Mix leaves of gold into honey with the aid of a pestle and mortar Then pour into water The gold will settle down on account of its heaviness and honey will dissolve into water The process of rubbing gold into water and Gum should be repeated many a time Now your ink is ready If it is very thick, dilute it by mixing some water

Ink for a travelling or moving printing press —Take one chhatak of suresh (gum compound) and soak it into water for the whole night and filter it through a clean cloth of muslin and separate the water. Put 5 chhataks of Glycerine into this suresh (Gum compound) Put it into an earthen pot and heat it and stir it thoroughly so that it may not settle at the bottom Now put some drops of cloves oil Fill this gum compound into the wooden frame and keep it for cooling for one day only Then this ink will become ready for sale

Stamp Pad Ink —In English, Stamping ink is called (Stamp pad Ink) It is of two kinds One is called Rubber Stamp Ink and the other is Metal Stamp ink. There is a little difference for making both the inks Now-a-days, the demand of this ink is increasing This ink has the following qualities —

(*a*) It should give a clear impression

(*b*) It should become dry at once after it is used for stamping

(*c*) The colour should be neither too fast nor too light.

(*d*) The colour should be made homogeneous The following are some of the valuable prescriptions of Rubber Stamp Ink —

First Prescription

Methyl Violet two B lamp	half Tola
Glycerine	4 ounces

Methylated Spirit	2 ounces

Method of Preparation—First dissolve the colour into the Glycerine When the colour is dissolved, add spirit into it, and later on, heat the mixture on a water bath.

Second Prescription of Stamping Ink.

Violet colour	Three parts
Aulic acid	Five parts
Castor oil	ninety five parts

Method of Preparation.—First add colour into the acid and dissolve it thoroughly Later on add castor o l Put the mixture on the fire for a little while After it, you will note that the ink has been prepared.

Third Prescription of Stamping Ink.—Colour (green, violet, crimson etc, you can add the same colour as you want the colour of the stamping Ink) One Tola

Glycerine	half Tola
Rectified spirit	four chhataks

Method of Preparation—First dissolve the colour into the spirit Then add Glycerine into it and make it homogeneous

Fourth Prescription of Stamping Ink.

Colour	One Tola
Rectified spirit	16 Tolas

Method of Preparation.—Add the powdered colour into the spirit and fill into the bottles and keep separate. Your i k has been prepared.

Lithograph Ink.

White Wax	8 parts
White Soap	2½ parts
Lamp black	1 part
Shellac	2 parts

Method of Preparation —First melt wax and soap and mix them thoroughly Then add lamp black into it and heat it by putting it on the fire at a high temperature Later on add shellac and heat it thoroughly and make it homogeneous.

Second Prescription of lithograph Ink.

White wax	five chhataks
White soap	five chhataks
Miton suit	1½ chhataks
Shellac	2½ chhataks
Mustagi	2½ chhataks
Lamp black	1½ chhataks

Method of Preparation —First melt the wax and soap into a liquid form and dissolve miton suit into it Then add shellac and *mustagi* and heat the mixture Later on add lamp black into it

Black ink of marking the clothes

Borax	Six parts
Shellac	eighteen parts
Distilled water	hundred parts
Lamp black	as required

Method of Preparation —First boil the water and add borax into it When borax is dissolved, add shellac into it and stir it with an iron ladle so as to make it homogeneous Now pour some of the solution into another pot and add lamp black into it and stir it Then stir by taking the solution in the same quantity by the same process

Red ink of marking the clothes

Nitrate of silver	24 parts
Extract of Tamarind (*Imli*)	30 parts
Gum	20 parts
Red Carmine colour	one part

Ammonia	According to requirement
Distilled water	40 parts

Method of Preparation —Dissolve the red colour water of Ammonia Extract of Tamarind and Nitrate of silver may be powdered separately Then mix all the things thoroughly. Later on gum may be dissolved into water and this solution may be added with the first solution

In this way silver nitrate, gum and ammonia may be added to any colour such as , green, violet, crimson, orange etc. so as to make the ink of that separate colour

Ink of Typewriter Ribbon —One seer of lamp black may be mixed thoroughly with five seers of Glycerine Heat it on the fire On cooling, if the grains of lamp black begin to become separate, add a little water and heat it. If you want to make the ink of another colour, you can add best quality of aniline colour in stead of lamp black Vaseline may be substituted for Glycerine Melt vaseline on the fire and add so much quantity of lamp black or aniline colour as may be soaked with a grain Later on, when it becomes cool, add Benzine equal to the quantity of vaseline Turpentine may also be added into it All the materials should be thoroughly mixed and dissolved Later on soak a ribbon into it and test the ribbon If the ink is somewhat thin, add a little of wax into it. If the ink is thick, add vaseline into it If it seems to be light, add lamp black or colour

Manufacture of Printing Inks.—Ink is manufactured from pigment suspended in vehicle, which acts as a binder and makes the ink 'flow' well on the press Linseed Varnish which is prepared from flax (seeds) is the vehicle commonly used in letterpress and Litho inks Viscosity or 'thickness' is the essential characteristic of Varnish , but it should not produce 'threadiness' when held between finger and thumb and pulled apart Ink mixed in such varnish is called 'short' and the opposite of it is called as 'Long Ink'

The viscosity tells the suitability of the ink for machines of varying speeds To make Printer's ink, finely divided

pigment is ground into the varnish so as to make them homogeneous.

Every particle of pigment should be thoroughly coated with the varnish

Most of the good Black Inks are manufactured from Lamp—black Lamp-black is made by passing the smoke of burning oils through many chambers and collecting the deposit of carbon Oils such as fish, rosin oil and mineral oils are used Carbon inks are manufactured from the products of natural gas which is collected from the mines

Pigments are excavated or found ready for use A great number of colours are today made from aniline dyes produced from coaltar

Before mixing the colour with oil it is put to many tests for acidic and alkaline reactions

The ink mill in which the ink is ground is made of three heavy rollers which revolve at different speeds When the first two rollers revolve inwards, the mixture is fed on them The difference in speed causes friction and finely grinds the ink which is then fed to the third roller revolving at a higher speed and scraped off from it

This operation is repeatedly done until the fineness of ink is ensured

How the inks dry.—After printing, the ink should dry on the paper Some jobs require instantaneous drying, while some can stand a little delay and in some cases drying has got to be retarded Weekly news-magazines printed by photogravure are the example of the former, while in case of trichromatic printing the initial colour should not dry hard Though the printer passes a job as dry it is only 'gel' (semi solid) and it means that the ink has set and will not smear or set off The impression of print should stand rubbing and handling Inks should become solid on the surface in case of glazed papers or be absorbed leaving the dry film of pigment

on the surface as in the case of antiques and news prints Therefore in selecting the ink, you should take into consideration, the quality of paper

Printing inks dry in three different ways by (1) Oxidation (2) Evaporation and (3) absorption.

Oxidation is the best process of drying inks. The linseed oil in the ink printed in thin films absorbs. Oxygen from the air and acquires solid form Oxidation is faster when boiled linseed is used and can be quickened still further, by the addition of metal driers such as lead, cobalt, Manganese, etc

Tablet-Making Machine

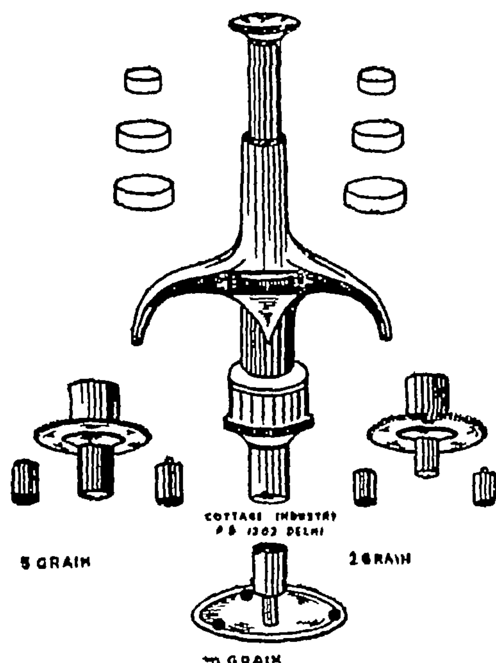
FOR

DOCTORS

Vaidya, Hakims and Manutacturers

Tablet-making machine —This machine contains three dies, one of 2-grains capacity and the other of 5-grain

TABLET MAKING MACHINE



capacity. Third 10 grains capacity. You can make tablets of medicine and ink etc, by the operation of this machine. Price Rs. 25. Packing and postage charges extra,

Industry of Plastic Articles

Toy-making Industry is not only prevalent in India but it is also being done in the whole world There is no end to this industry Toy, as you know is a plaything especially for children, or you may say a knick-knack, thing meant rather for amusement then for serious use We import toys of lakhs of rupees from Japan in India These Japanese toys are sold in India Its demand always remains ever increasing throughout the twelve months of the year The demand increases in the days of festivals There are hundreds of factories of this industry in India. They are earning lakhs of Rupees In every era comes an epoch-making Industry which leaves its impression on the pages of history In the modern era, plastic industry is on the increase You might have seen that at many shops thousand varieties of plastic toys are kept for sale They are of various colours—some are red, some are yellow, some are rosy, etc But all of them are made of plastic This is the most profitable business If this industry be performed carefully, it can yield an income of lakhs of Rupees yearly.

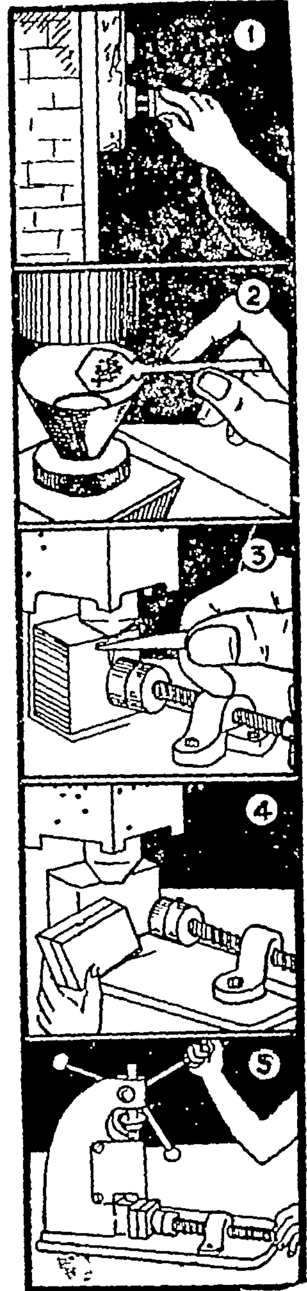
What material is needed for this Industry—The following things are needed for the plastic toys —

1 Plastic Injection Moulding Machine
2 Dies for making the plastic toys
3 Plastic crystals
4 Solution for joining the plastic.

Plastic Injection Moulding Machine —In the machine crystal plastic is put And it is turned into the shape of a thick mixture and pressed from upper side, it comes into the die The die of the toys that is fitted below the mixture is engraved or embossed at the surface of the molten plastic, thus the figure of the die is carved on the plastic If the die of the complete toy is fitted on the machine, the complete toy will be manufactured If the die of a part of the toy is fitted, the part of the toy will be manufactured To understand the working of this machine you should observe the given figure very closely

(1) Method of working at the machine —Study the given

figure according to numbers



1 When you want to work at the machine, connect the plug of the machine with the electric current

2 It is essential that the nozzle of the machine should be filled upto the brim

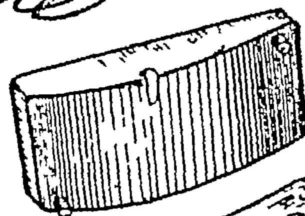
3 The man operating the machine should wait for 15 minutes so that plastic may melt into liquid form and the excess portion may come out

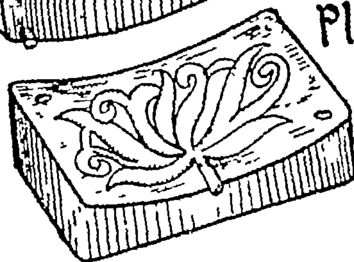
4 Fit the die just below the mouthpiece of the nozzle.

5, Press the handle from above

6 Take out the manufactured toy at once Repeat this process again and again Heat the die before fitting so that the plastic mixture may easily flow

Plastic Injection Moulding Machine





Die For making Plastic Articles

2 What else can be made in this machine except
All the things like plastic buttons, bangles, brakes of
small and big plates, and many other things made of
that you daily see in the market, can be manufacture
... machine

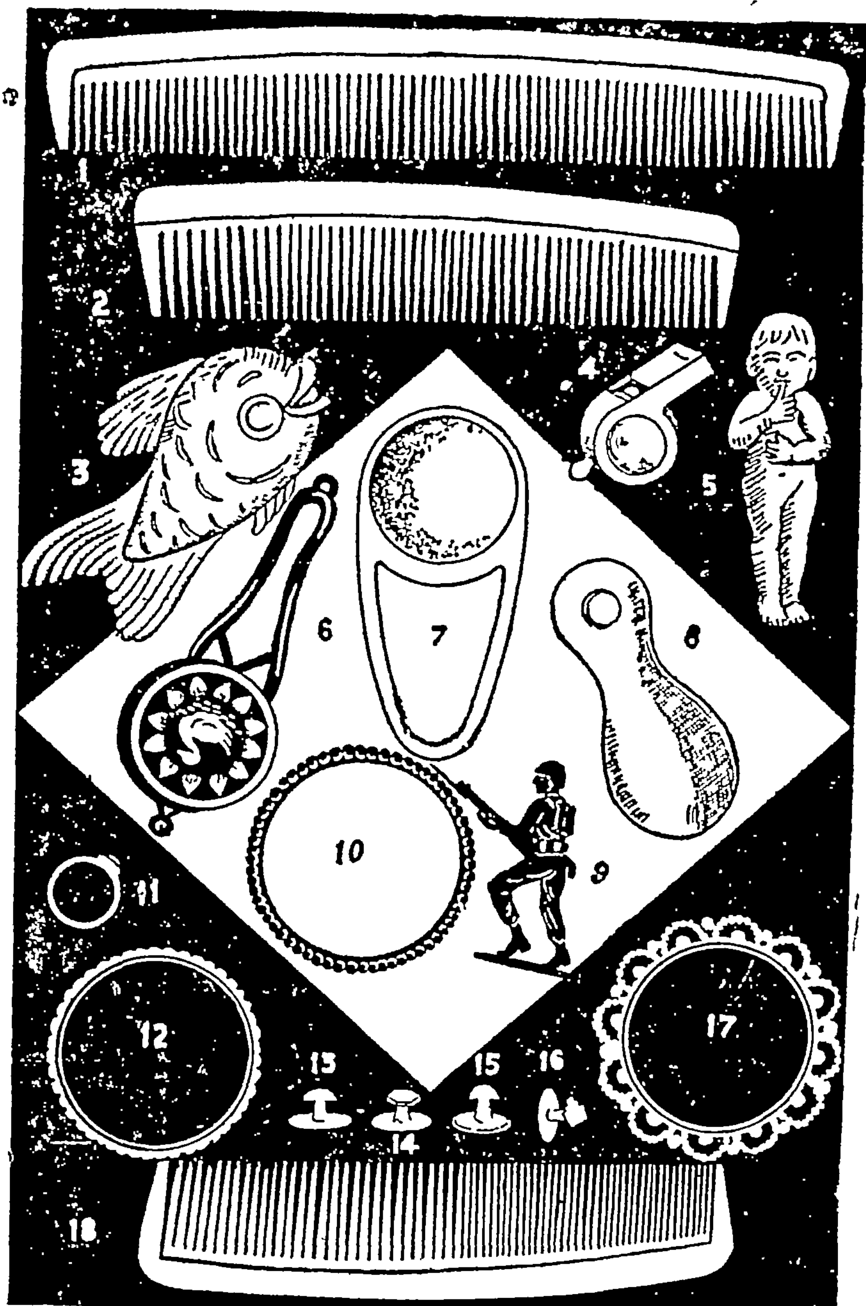
Kinds of plastic injection moulding machine —The name of this machine is kept on its working capacity. The machine that can melt ¼ ounce of plastic, is called the Machine of Quarter ounce The machine that can melt ⅔ ounce of plastic, is called the half ounce machine In the same way, the machines can melt 1, 2, and 3 ounces of plastic and their name is called after their melting capacity. The price of ¼ ounce machine is Rs 175, the price of the ½ ounce machine is Rs 275 and the price of the I ounce machine is Rs. 395 The price of dies that are fitted below the machines, is according to their design

Shape of the Plastic —Plastic is of two kinds First kind of plastic you can see in the shape of plastic sheets These sheets can be had into different colours Sheets of plastic cannot serve our purpose The second kind of plastic is in the shape of crystals, i e, these crystals are just like those of sugar crystals in shape The plastic crystals are available in every city of India and it is packed in drums of one hundredweight. This is also of many colours

How much electricity is needed for the plastic Injection Moulding Machine —This machine can be driven by both the electricities, *i e*, A C and D C. but in both the cases voltage should be 220 If the power of the electricity be less than 220 volts, it would not be able to melt the plastic crystals.

How much material can be manufactured in 8 hours with the aid of this machine —The quantity of manufactured goods depends upon the ability of the operator If the operator is a good hand, he can manufacture 144 pieces in one hour, if one die embosses six pieces at a time as is seen in the case of buttons Then 600 buttons can be prepared in one hour

Of what metal the machine is made —Some part of the machine is made of steel, part of it is of gun metal and the remaining part of cast iron Flexible wire is joined with the heater of the machine to connect it with the switch and electric wire


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18

What are the names of the parts of the machine

1. **Baunk (Screw-driver)**—With its aid we fit the die closely so that there may not remain any slit This screw driver is a tool like blunt chisel for turning screws by the slot If the die is fitted in a good manner, the goods will be prepared at the proper speed and accuracy

2 **Nozzle**—This is a mouthpiece of the machine A die is fitted at the end of the hose It drains the molten plastic into the mouth of the die The condition is that the mouth piece of the nozzle and the hole of the die should be straight and closely fitted

3 **Feeder**—The plastic is put into the feeder according to the capacity of the machine It melts the plastic with the heat of electricity

4 **Heater**—The function of the heater is to give heat to the feeder

5 **Pressure**—Its function is to press the molten plastic downwards

6 **Electric Shoe**—The function of the plug is to transmit electricity from the main to the plastic moulding machine

Defects of the die—The general defect seen in the die is that the material does not reach at the fixed place properly or the lower level of the die is not properly set, therefore the molten plastic mixture covers half the place of the die meant for embossing on account of which half the figure will be engraved This defect will not be found in the dies manufactured by the standard companies and factories They test the dies after manufacturing them

Heater for melting the plastic—At the mouth of the feeder, some sheets of mica are attached and over it the wire of any number required is tied At both the ends of it china beads are stringed This is the melting portion of the heater From the mica, the heat is transmitted to the feeder When the feeder is hot the plastic material begins to melt

You have understood the name and function of the parts of the machine. Now two things are very important Try your best to understand these Firstly, it is the proper fitting of the machine and keeping its proper level. Secondly, this machine is operated by the help of the electricity Therefore before putting into operation, test it properly by the following method Try to understand both the processes.

Setting the level of the machine—The level of the machine should be plane If the level be not set properly, the material will not flow properly into the machine. Therefore sometimes the goods will be manufactured and sometimes it will not be manufactured. The surface of the floor where you want to fit the machine should be even and tightly fit all the four screws of the machine and try also the fitting of the die The surface of the die should be uniform

There should be no shock in the machine—If the wire that connects the electric power with the heater of the machine is properly fitted, the machine would not give any kind of shock in any case because the electric wires are connected round the mica Heat can pass through mica but electric current cannot pass through it. If mica is burnt and there is a hole in it then the shock will be felt If the electric wire is somewhat broken, get it connected by some electrician

The method of joining two parts of a plastic toy—If you study the construction of a plastic toy very closely, you will find out that it is made of two parts. The front part and the back part are manufactured separately After perparing the two parts separately, they are joined together with plastic sticking solution This solution can be had *ready made* from the bazar If the solution is not available in the bazar, you can prepare the solution yourself by the following method which can serve your purpose

Take some kneaded flour and wash it hundred times by clear water So that all the starchy matter may be distilled with the water, the remaining matter will be elastic just like rubber Mix some lime with it, paste it on one side of the toy and join it with the other part The toy will stick in the

shape of one complete toy. Ready made solution can be had from the bazar

At what place, these plastic moulding machines are available —These all machines can be had from--"Cottage Industry, New market, Anguri Bagh, (K-8) P B No. 1262, Delhi 6

The Industry of wooden toy-making —The industry is of various kinds. One kind of industry is to make toys just like horse, elephant, etc The performance of this business needs a technical hand and one toy cost at least Rs 3 or Rs 4 There is no demand for such toys Therefore it is worthless to explain this industry.

2 Sticking and cutting of plywood according to pictures—This work is very easy. The picture is placed at the plywood and marking are taken on the plywood. Then the plywood is cut according to the marking outlines with the help of a machine which can be had from Cottage Industry. The price of this machine is Rs 150. Then the picture is pasted on this cut plywood. At the back of it a stand of card board or plywood is fixed By this method, the picture becomes charming and attracting to the eye. Such pictures sell like hot cakes in the bazaar

3 Toys are made with old pieces of papers and earth.—Generally you might have seen that the toys of Mathura, Gwalior, Agra are sold in various colours in the bazaar. These are made of old pieces of paper and earth If by chance they fell from the hand on the ground, they do not break Moreover they are cheaper than the other toys There is a vast field for these toys and they command a wider market This work is very easy, and can be started with a little capital. These moulds are made of Aluminium. Complete mould costs Rs 20 It has two parts The complete mould is made by joining the two parts

Method of toy-making —Take a big cauldron and put it on the fire. Pour five or 10 seers of water in it and put the old pieces of paper in this water in such a quantity that they may soak all the water in the cauldron.

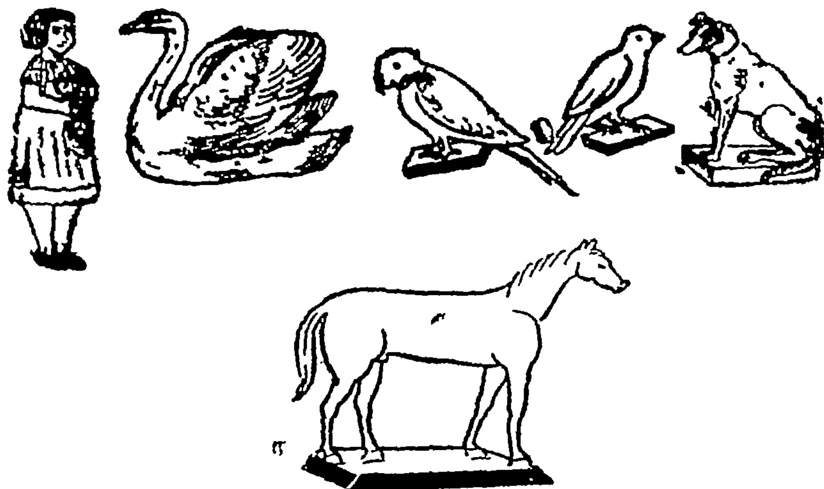
When this compound of water and pieces of paper begins to boil, you should mix both the materials in a very good

manner. When the water and paper acquires the shape of a thick paste, then put soft earth (*chikni mitti*) in it in such a quantity so that it may acquire the shape of kneaded flour with which breads are backed

Now shake it vigorously with a ladle so that no one may be able to distinguish between earth and paper. Both can assume one shape Now take down the cauldron and take out the material from it When it becomes somewhat cold, put it into moulds Take it for granted for a little while that you have a mould for a duck and it has two parts Take one part of the mould and paste this compound upto the thickness of $\frac{1}{16}$ inch at the inner side of the mould and press it with fingers. When it sticks completely to the mould, put it in the sun and then take the second part of the mould and repeat the same process and place it in the sun After a little while, with the heat of the sun this toy becomes some what dry Now take out the toy out of the mould Straighten the two parts of the toy with the aid of a file after setting them as a complete toy. Stick some sticky earth on four sides at a thin Paper and place it in the sun so that the toy may become dry in a very good manner After it smooth its edges with a file Now colour this toy into its natural colours with red, green, yellow and blue etc , and make its nose, mouth, ear and eyes etc , and send it into the market for selling

Cheap and very profitable business for toy-making —You can start this business with a capital of Rs 50 Take only two or three moulds and material of five and ten rupees. You can start this business and easily earn Rs 3 or 4 daily. Probably it is more profitable. In this industry (1) resin (*biroza*) and cement toys (2) Wax and resin toys, (3) Saltpetre (*kalmi shora*) toys, (4) Sugar toys, (5) Zinc toys, (6) Condensed milk toys

The moulds of toys are of different kinds —Such as, horse, elephant, magpie, parrot, cat, dog, duck, lion, cow, deer, stork, fish, *Ganesh Lakshmi*, (the goddess of wealth), Lord Krishna, Hanuman, Virbajrangi, Rama, Lakshmana, Janki, child, Japanese doll, Mahatma Gandhi, Jawahar Lal Nehru,



Subash Chandra Bose etc All these moulds are made of Aluminium These moulds have proved more beneficial for this business

The above-given six kinds of toys can be made by the aid of one mould For instance, you have bought a mould of Japanese doll The toy-making methods are given below According to the methods, melt resin (*biri za*) and mix cement with it and pour this compound into the mould and take out the toy out of the mould after a little while In the same way, you can make the toy of wax and resin after melting them together and pouring the compound into the mould

After a little while the toy will be ready Similar is the process for making the toys of every kind with the help of the mould The price of every mould is Rs 10 These moulds can be had from the Cottage Industry, New Market, Anguri Bagh, P B No 1262, Delhi-6

Of what metal these toys are made and of what size they are —These toys are made of Aluminium. The size and length of the toy is 3 inches and breadth 1½ inches Sometimes the length can be taken 7 inches and breadth 3½ inches The length and breadth of the toy depends upon the shape of the toy. But the size will lie within it. It will be neither greater nor smaller than it.

How many moulds are needed to start this business —This depends upon your own choice. If you will keep many kinds of patterns, you will earn much If you will keep small quantity of patterns, you will earn less A big heap of different toys extracts the money from the pocket of the customers but a small heap of different toys sometimes extracts the money from the seller, i e invest-much earn-much theory is the core of this business.

Different methods of making six types of toys are given below :—

Method of making toys of resin and cement —Take 4 chhataks of dry resin and put it in some small utensil or cauldron and place it on fire When the resin melts into liquid form, add 2½ *chhataks* of cement in it Mix both of them in a very good manner. Take the mould that is made of Aluminium Lubricate the mould with oil and pour this mixture into it. Fill the mould up to the upper edge When the mould is filled, turn its upside down Some of the material will stick to the mould and the remaining will come out. Open the mould with the edge of a knife and slowly take out the toy from the mould and place it in water so that it may become hard When the toy is cold, smooth the edges of the toy with a file so that its shape may look nice Now we have to polish this toy in a golden colour The method of polishing it with golden colour is given below —

1 **Method of polishing the toy with a golden colour .—** Take a small utensil and put some golden colour in it Now add three or four drops of turpentine oil in this golden powder When both the things mix together in a very good manner, add three or four drops of varnish in it and properly mix it Now coat this golden polish on the upper surface of the toy The beautiful golden toy will be made This is the method of making golden toys

2 **Method of making toys of wax and resin**—Take four *chhataks* of resin and put it into some cauldron and place the cauldron on the fire When the resin melts put paraffin wax into it When both of them mix together in a very good manner, take out some of melted mixture and mix ½ tola

colour according to your own choice and put it into the cauldron Now lubricate the mould and put its upside down. Some of the material will stick to the mould Slowly open the mould with the edge of knife and take out the toy The toy will be ready. Smooth its corners with a knife

Note —The toy-making mould consists of two parts Therefore at the time of opening it, you should take great care

3. **Method of making toys of resin** —Take one seer of salt-petre (*kalmi shora*) and put it into an iron cauldron and place it on the fire of soft cake and cover it with a lid The heat of the fire should be very high. After half an hour when you will lift its lid, you will see saltpetre melted just into a liquid form like water Put ½ tola of powdered alum into it so that saltpetre will be clear Take one *masha* of *hira kasis* (realgar), which is also called *kali mitti* in vernacular, powder it and mix it into the compound Now pour it into a mould with the help of some bigger spoon and at the same time put the mould upside down A small quantity of the material will stick to the mould The remaining will come out Slowly open the mould with the edge of a knife and take out the toy Protect your hands etc at the time of working If the melted saltpetre be put on your hand, your hand will burn and scars will appear on it

Note—As long as all the material in the cauldron will not be finished, i e , all the toy will not be made, keep the cauldron on the fire If the heat of fire is low, all the material will become hardened in the cauldron and stick to it The method of polishing the toys is the same as has been already explained in the method of polishing the cement and resin toys

4 **The method of making sugar toys** —Take one cauldron of brass, put one seer of sugar, and *4 chhataks* of water and place it on the fire Mix one *rati* cream of tartar in it When it begins to boil properly take it down from the fire Mix it thoroughly with a wooden ladle Lubricate the mould with ordinary oil and fill it with sugar compound and turn it

upside down A little of the material will stick the mould. The remaining will come out Take out the toy by opening the mould with the edge of a knife Repeat the same process for a fresh quantity of sugar toys.

5 **The method of making the toys of zinc**—Take zinc according to your requirement, put it into the cauldron and place it on the fire When it melts into a liquid form, lubricate the inner side of a mould by the smoke of a burning candle, *i.e*, this smoke will give the work of an oil Now fill it with molten zinc and slowly open the mould and take out the toy.

The above mentioned toys will be hollow from inside but the toys of zinc will not be solid.

6 **The method of making toys of condensed milk**—The toys of condensed milk are the nourishing food for the children The mould of these toys is small The method of making these toys is very simple Take one seer of sugar in a grinding-stone and sprinkle a little quantity of water on it and mix four *chhataks* of condensed milk with it. When both the mater als m x together in a proper manner, put it in the mould and press it from upper side Slowly open the mould with the edge of a knife and take out the toy These toys can be coloured with colours that are used for eating purposes You can mix the colour according to your own choice

Note—You can make toys of every material with the aid of one mould, *i e*, the toys of five kinds can be made with the help of one mould only.

SOAP INDUSTRY

The easy and simple business -Soap is one of the necessaries of life, The soap-makers have estimated that the soap that is made in India cannot meet the demand of the people Therefore this Industry should be extended so that the wealth of our country may not go to other countries

There are many factories in big and small cities of India There factories are making soap Many people are making the soap on a small scale in their houses They sell this soap in the market The population of India is 25 crores Therefore it is difficult to estimate the quantity of soap that is consumed in the whole of India Our aim is that as much soap will be made will be sold The full detail regarding soap is given below If you will read it at a wink, you will fully grasp the detail of the soap making

The essential things for soap-making

(1) Hydrometer—To see the degree of the paste of caustic soda (2) Iron tanks for solidifying the soap (3) Wooden plank on which the soap cakes are cut (4) Machine and steel wire for cutting the soap (5) Cauldron for soap-making or soap-boiler (6) Wooden ladle with which the soap is mixed (7) Cauldron in which the soap paste is prepared (8) Mould for printing the make and giving the shape to the soap (9) Machine for printing on the soap (10) Compass with the help of which we make outlines for cutting the soap cakes (11)The foot rule for giving marks on the soap, etc

Constituents of soap —The things that are used for soap making in a raw form are given below

(1) Slaked lime (2) Rehmitti (Soap earth) (3) *Sajji* (4) Soda Carbonate (5) Potash Carbonate (6) Soda Caustic, (7) Caustic Potash (8) *Rosen* (9) Salt (10) Constituents that are used with them (Filling Agents) (11) Sodium silicate (12) Starch (13) Soda Crystals (14) *Sankh Zira* (15) *Kangan Khar* (16) Parlus ash (17) Oils of every kind, (18) Colours that are used in soap making (19) Essences for the soap (20) Water (21) Sulphur and nitric acid. (22) Spirit. (23) (Hydrometer,

Precaution for Buying Oils

Now-a-days great care should be taken in buying the raw material for soap-making because pure material can be had from the market with great difficulty The man becomes giddy in buying the oils In some cases oils are mixed with oils Sometimes there is adulteration of something else Seeing this thing, you can depend upon big shopkeepers

The white oils have complicated the condition so much that to recognize the matter has become very difficult Therefore you should be very careful at the time of buying the oil As far as you do not get the pure raw material, your soap will not be ready in a proper manner Therefore the separate detail of every oil will be given

Different oils for soap-making

Mohwa oil —Mohwa oil is of two kinds One is yellowish while the other is green Both of them are used for soap-making This oil cuts the dirt of the cloth in a very good manner This oil is considered as best of all the oils Its water absorbing power is about three or four times The soap made of it has a whitish colour The soap made of it gives less foam You can make 3 maunds of soap with one maund of oil This oil remains in liquid form in summer season and becomes solidified in winter season Every kind of oil can be mixed with it There is no harm, if ½ part of coconut oil may be mixed with the mohwa oil.

Castor oil —This oil is found in huge quantity in U P This oil is not thin like other oils but it is somewhat thick With oils, this may be mixed in a little quantity. Then it may be better Because this oil does not cut the dirt, and neither it gives foam to soap It is alike in every season If it may be mixed 10 or 15% in the English soap, it makes the soap shining and beautiful If it is used for boiled soap, it is better

Sesamum oil —This oil is of two kinds One is of washed sesamum and the other is of unwashed sesamum It is used for making scented oil The soap prepared from it cleanses the cloth in a very good manner The soap prepared from this cannot get bad for two years Its foam remains for a long time The people who make shaving soap mix it in order to produce foam.

Cotton seed oil —The cotton-seed oil is of two kinds One is purified and the other is unpurified The soap made of this oil produces much foam and cuts the dirt in a good manner. But if English foam making soaps may be prepared from it, it reduces its foam Pure soap in which Mohwa oil is used, if it may also be used with it, the soap will be cheap and the material becomes also good.

Coconut oil —Coconut oil is of white colour It solidifies in winter season It is used by the English soap makers The soap made of it is the king of the foam-giving soaps. The indigenous soaps that give less foam, if a little quantity of it may be mixed, a very good soap will be prepared If it be mixed with the indigenous soap, it can absorb 4 times water but it is equal to zero in removing the dirt

Mustard oil —The colour of this oil is yellowish The soap made from this oil is yellow in colour. It also gives foam It fully cuts the dirt It can absorb very less water Therefore it is very rarely used

Linseed oil —The oil made of linseed is very much foam giving It is also very soft If it is mixed with other oils, the soap becomes very good

Margosa oil —Margosa oil is a very useful thing If this oil is mixed 10% with the coconut oil, the soap becomes verv fine The soap made of this oil can neither remove the dirt nor gives foam This soap is used as a scented oil otherwise it has no connection with oil Because margosa oil is anticeptic, therefore the people mostly use it

Groundnut oil —Groundnut is the product of Punjab, Bombay and Madras Its pure oil is used as a Banaspati Ghee and for eating purposes The soap prepared from pure

groundnut oil does not give good foam, therefore it is used by mixing it with other oils The purified oil is used in the superior quality of soaps

Palm oil —There is a tree which is found in Africa The kernel of this fruit is pressed in order to get oil Its shape resembles with the coconut The people who do not want to make soap from tallow or fat, they can use this oil in its place In foreign countries the people prepare high quality of soap like toilet soap from this oil This oil is mixed with coconut oil for using it This oil is found in Burma in huge quantity

Fish oil —The fish oil is used for soap-making The fish oil is used in the countries where other oils are not available or are dearer than the fish oil It is also used in the cities that are situated near the coast of the sea or sea islands The fresh oil of fish is blackish, dirty and fluid It is rectified for soap purposes.

Fat —According to my view, the fat should not be used for soap-making because fat is obtained by killing the animals If we earn money at the expense of others life, this is not a good thing When we can do without fat and the life of the animals can be saved, then what is the use of taking the life of others. I think you would agree with me on this point

The properties of the fat are the following —

The soap made from fat is beautiful and shining Its foam is very thick The soap is less soluble It looks hard, if pressed It removes the dirt of the cloth If we bathe with the soap prepared from fat, the body does not feel dryness Fat can be used in the boiling process of the soap If it is mixed with oils for soap making, the soap would be of a high quality For making the shaving soap, if the fat of the pig be used, the foam will not stay The fat of deer and horse has a great property of absorbing the water

Note—Tallow is a substance got by melting the harder and less fusible kinds of fat, used for making soap and candles. Fat is an oily substance composing fat parts of animal bodies Fish is an animal living in the water *Strictly speaking*, it is a vertebrate cold-blooded animal having gills throughout life and limbs, if any *modified into fins*

Three different ways of Soap making

(The soap is generally made in three different ways)

1 **Boiling process of soap-making** —This process cannot be taken into practice by the persons who want to shart this business on a small scale One or two maunds of soap will be dear, if made by this process By big factories hundred or two hundred maunds of soap can be made at a time by this process The soap prepared by this method looks fine and is of high quality By this process when oil and caustic are being boiled in the cauldron, it can be decomposed by the help of salt because salt and saltish water cannot assume the the shape of soap, therefore when the salt is added, the soap is decomposed and comes at the top on account of becoming light the dirt, earth, dust, water and glycerine of the oil and watery caustic are separated and settle down at the bottom The manufacturers of soap separate paste-like dust earth and water from glycerine and sell purified liquid on high rates but the people who start the business on a small scale think it rubbish and threw it into the drains The peculiarity in this process is that the soap is devoid of all the impurities because all the impurities settle down at decomposition By this way, it takes only one week in preparing one composition of soap It takes three or four days in solidifying it This process takes more time than the other processes This process is not applicable for the people who has less capital

2 **Soap-making by a lukewarm process** —Put the oil in the cauldron and add solution of caustic slowly and keep the oil boiling Keep the oil stirring continuously during the process and continue the mixing of the solution by and by By this process, the oil begins to boil at a high temperature If the cauldron is not big, there would be a huge loss

Therefore in big factories, agitator is put into practice It stirs the oil continuously and decreases the danger of

boiling If at the time of boiling, a small quantity of cold oil may be added, the oil settles down The oil and caustic are heated on the fire so far as the process of saponification is fully completed By this process, like the cold process, the soap is quickly prepared. By this process generally soft soaps are made for shaving purposes The specialty of this process in that 50% of water can be absorbed into the soap.

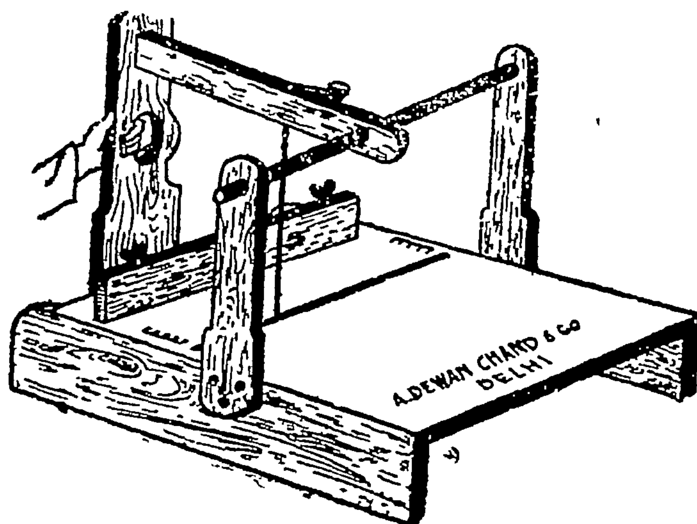
3 **Cold process of soap making**—This process is very old Besides it is less expensive and easy. The soap is prepared in 9 or 10 days with the hot process whereas the soap is prepared in one or one and a half days by the cold process It becomes hard after 3 or 4 days for washing the clothes

Because by this process the dirt of the oil remains in the soap, therefore when you prepare the soap by the cold process, you should use pure oil and clean paste

This process is called the cold process because fire is not used in this process The paste of soda caustic is mixed with the oil After some time by stirring the compound, the soap solidifies and acquires its proper shape But if the fat and oil are in a solid form, it should be melted on the fire When the solid oil becomes liquid on heating on the fire and when some drops of water are put into it, it gives some cracking sound Take it down the fire and stir it with a wooden ladle If we add rosen in a suitable quantity with the soap that is prepared by the cold process, it would be more beautiful than the soap prepared by the hot process by mixing rosen It will be better for washing the clothes The soap prepared by the cold process is not so beautiful as the soap prepared by the warm process or lukewarm process The soap prepared by the cold process is more weighty and solid than the soap prepared by the warm process or lukewarm process The soda caustic and oil are not mixed as thoroughly as they are mixed by the warm or lukewarm process. Generally this process is put into practice for making the soap for the purpose of washing the clothes By this process you can make soap

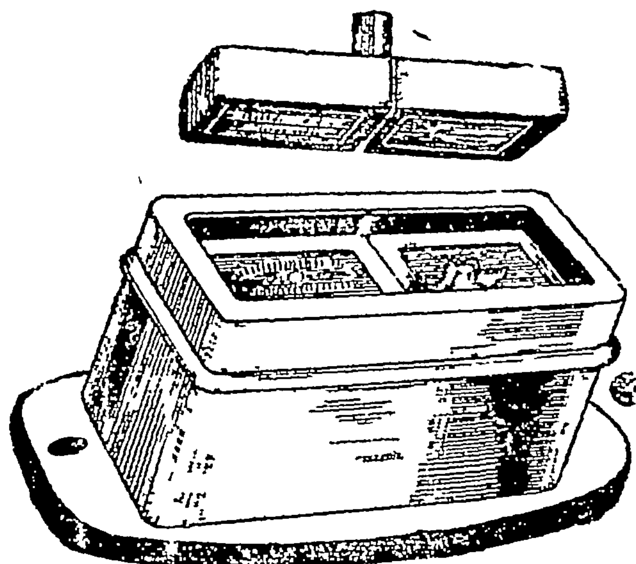
at home from one seer to twenty maunds with the help of a cauldron and other material

What machines are used for soap-making—When your soap is ready, try to cut it into the shape of soap-cakes The soap is cut into two ways First of all, the extra material at the top of the solid block is cut and kept aside so that its length and breadth may be even and equal When it becomes even, set a machine for cutting the bars of the soap Fix the soap block at the soap cutting machine and pull the hand



towards your own side One long and wide bar would be cut By repeating this process all the bars will be cut Now you have cut the big bars, again cut them into small bars Set the machine according to your own convenience and cut the small bars Now you have to make the soap-cakes Set the machine according to the size, length and breadth of the soap-cake and cut the soap according to your liking by this method This machine is made of iron and wood Its price is Rs. 88.

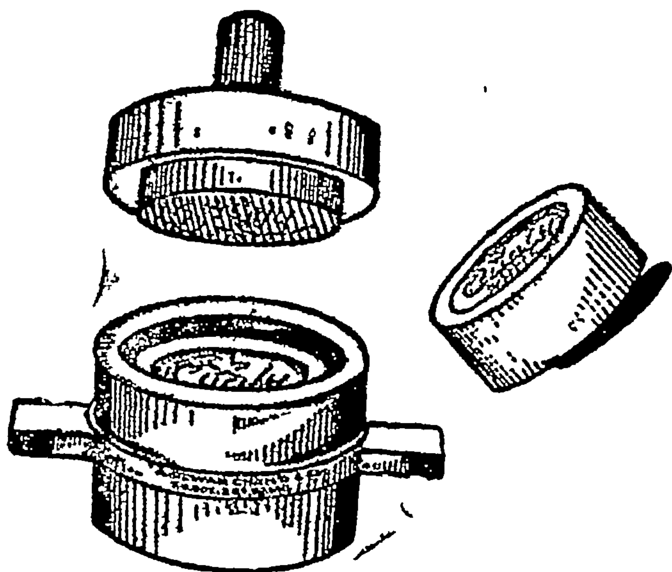
When the soap-cakes are ready, numbers and marks of the companies are printed on them. This work is done by the help of two machines The first is die and the second is a machine The dies are of the different kinds as you have studied in the beginning of the chapter The names of these dies are kept at the name of patent soaps such as Sunlight soap, Hamam soap, Riksona soap, Watni soap, Godrej soap Kanti soap, Bar soap, quadrilateral or square cakes of indigenous soap The Multani-shaped round cakes are made with the



help of dies The name and address of the company and the peculiarities of the soap are written on the dies. The price of one die is from Rs 90 to Rs 350 The die can be prepared according to the soap and the price depends upon the quality and quantity of the soap The pictures you are seeing show the shape of the die

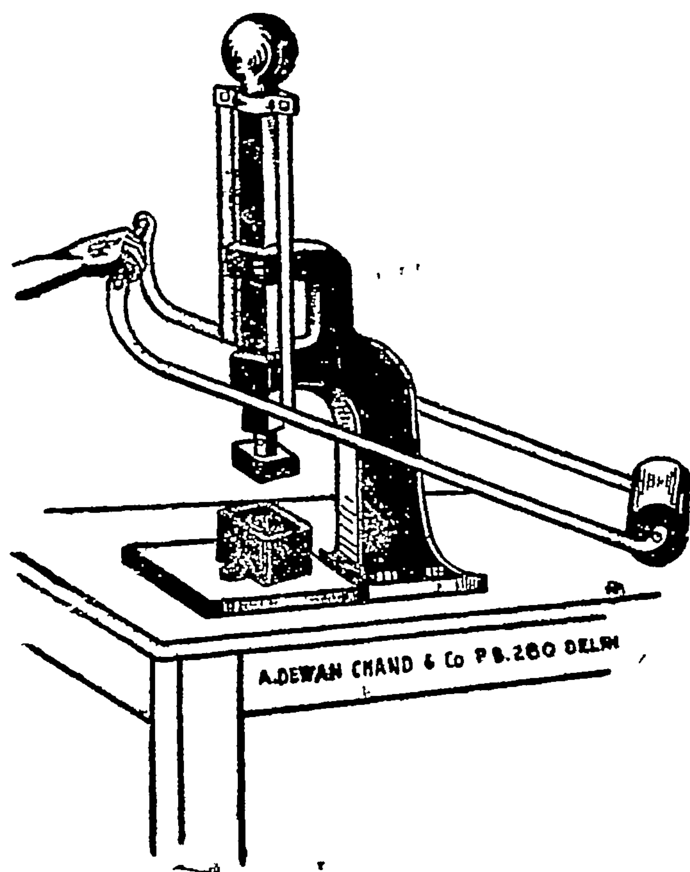
Two kinds of machines are used for soap-cutting One is operated by the hand and the other is operated by the foot These machines are of various kinds The different pictures

Soap Stamping Die



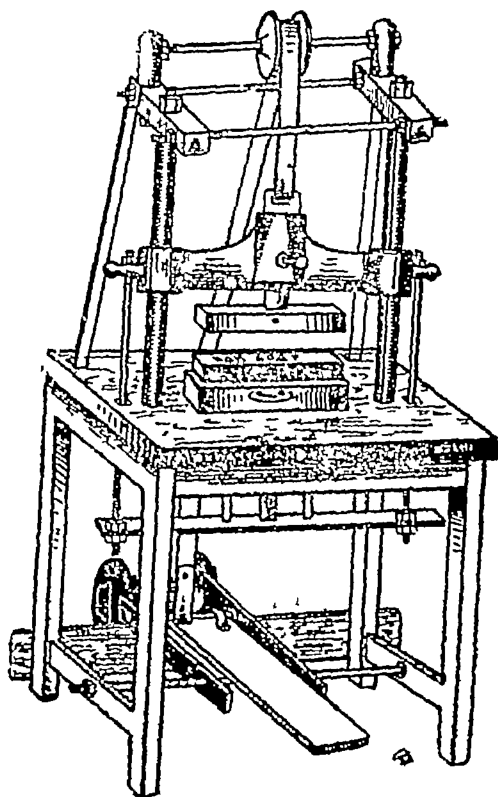
of these are being given By seeing these pictures, you will come to know the shape, size and outline of every machine in a vivid manner The price of every machine in given This is given only for your convenience All these machines can be had from the Cottage Industry, P B. 1262, New Market Anguri Bagh, Delhi Long bars etc of bar soap cannot be printed by the hand operated machine, therefore different machines which are driven by the foot are used

Soap Stamping Machine Hand Driven



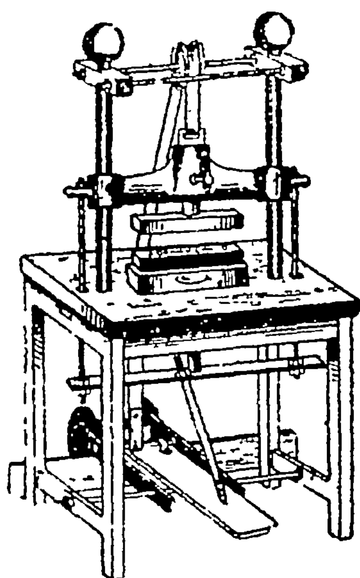
The price of the hand operated machine is Rs 350

Soap Stamping Machine Foot Driven No. 1

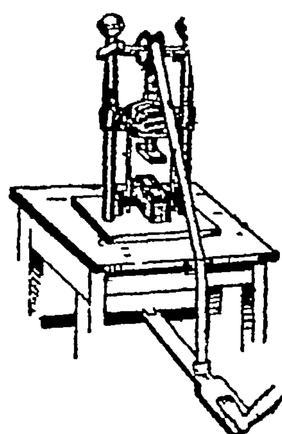


The price of the foot driven machine No. 1 is Rs 550

Soap Stamping Machine
Foot Driven



The price of Machine No. 2 operated by the foot is Rs 400



The price of the foot driven machine No 3 is Rs 350.

You have cut the soap-cakes Now their printing is remaining I think your soap-cakes are just like Sunlight soap First of all, you should take the die of Sunlight soap and come near the hand operated machine The die has three parts One is the body, the second is the upper part and the third is the lower one The lower and the upper parts should be above the soap By making the lower outline, write on it the name of the soap and the name of the company Make the body of the soap beautiful and take it out Now you should fit and tighten the lower part in the grip of the machine and upper part in the clutch of the machine Tighten the screws of the machine The two parts should be fixed in the upper part as well as in the lower part of the body of the machine very easily. They should not touch or crash with the body

Be careful at the time of fitting the die. The die fitted once remains in tact for many days If the die will not be fitted properly, firstly, it will not work properly. Secondly the mouth of the die will become curved I imagine that you have fitted the die on the machine, now you should lubricate the die with some ordinary oil so that the soap may not stick to it Now put the soap cake into the die of the machine and hammer the machine from the upper side At once the fully designed and printed soap cake will come out Repeat the same process again and again How much work is done by these machines in a day This depends upon the capacity of your workers. If you want to print the soap on the foot driven machine, you should fit the die of it and begin to work on the lines of the above given method.

The methods of soap making

The methods of soap making are given below We shall give you another book for the remaining portion

The methods of making Sunlight-like soap

1	Soda Caustic	1 seer
2.	Water prepared from soap-nut	2½ seers
3	Coconut oil	5¾ seers
4	Castor oil	¼ seers

5	Sodium silicate	½ seer
6	Soap stone	½ seer

1 (*a*) Take one seer of soda caustic and mix with it 2½ seers of water prepared from soap nut and keep it aside

2 (*b*) Take ½ seer of coconut oil and mix with it ½ seer of soap stone in a very good manner and keep it aside

Take ½ seer of water of soap nut and mix with it ½ seer of sodium silicate and keep it aside

Now take the remaining 5½ seers of coconut oil and put it in a big vessel. Then mix with it the compound of soap stone prepared in No 2 and curdle it in a very good manner so that there may be no stone or clog Now put the water of caustic soda prepared in No 1 and curdle it After four or five minutes, put the soda silicate (that is lying separately) in it in the form of flush and curdle it When the soap becomes solid, keep it aside in another vessel for solidifying and cover it from above and cut the soap-cake the next day

Hand and Mouth Washing Toilet Soap

1.	Soda caustic	1 seer
2.	Water prepared from soap nut	3 seers
3	Soda silicate	½ seer
4	Jaipuri soap-stone	1½ seers
5	Salt	½ seer
6	Mahuwa oil	½ seer
7	Castor oil	½ seer
3	Coconut oil	2 seers
8	Ground nut oil	2½ seers

1 (*a*) Take one seer of soda caustic, ½ seer salt and 2¾ seer water prepared from soap-nut and mix them into a vessel and keep it aside Keep it in the same position for 24 hours.

2 (*b*) Take 2½ seer soda stone, ½ seer of mahuwa oil, mix them thoroughly and keep them aside.

3 (*c*) Take ½ seer of sodium silicate and ¼ seer water prepared from soap-nut and keep it aside

4 —(*d*) Now collect all the oils in a vessel Mix with it 5½ seers of oil and soap stone compound Now No 1 paste of soda caustic may be put into it from above and thoroughly stir it with a ladle After three or four minutes, sodium silicate No. 3 that is dissolved should be poured into it and stirred with a ladle The colour you want to add should be added When the soap begins to solidify, pour it into another vessel and cover it from above and cut the soap-cakes the next day

Soap for Washing the cloth

1	Soda caustic	1 seer
2	Water of soap-nut	4 seers
3	Soap-stone	1½ seers
4	Salt	½ seer
5	Soda silicate	½ seer
6	Coconut oil	1½ seers
7	Mahuwa oil	½ seer
8	Castor oil	½ seer
9	Groundnut oil	2½ seers

1.—(*a*) Now take 3¾ seers of soap-nut out of the 4 seers Put one seer of soda caustic and ½ seer salt into soap-nut water and mix it thoroughly Now put this mixture aside for 24 hours

2 —(*b*) Take ½ seer of mahuwa oil and mix 1½ seer of soap-stone in it thoroughly and put it aside

3 —(*c*) Take ¼ seer of water of soap-nut and mix ½ seer of soda silicate in it and keep it aside. The remaining 8½ seers of oil should be put into a vessel and pour the No. 2 soap-stone into it and stir it thoroughly so that there may not be any clog or piece Now pour No 1 paste of soda caustic into it in the shape of flush and stir After four or five minutes No 3 sodium silicate solution should be poured into it and stirred When the soap begins to solidify, pour into another vessel and cover it from above The soap-cakes should be cut the next day.

Note — Take ¼ seer of soap-nut and grind them and pour three or four seer of water into it This solution of soap-nut is called the soap-nut water

Prescriptions of Soaps

1 Prescription

Soda caustic of 70 or 72 degree, water one seer, starch 4 chhataks mustard oil one seer

Method of preparation —Soda caustic should be dissolved into water at least 24 hours before making the soap so that there may not be any piece of soda caustic When the soda caustic will be put into water, the water will become hot automatically It is kept for twenty-four hours for cooling it When soda caustic paste becomes cold, the starch should be mixed with oil in a very good manner so that it may become homogeneous Now put the paste into the oil in the form of a flush and stir it with a wooden ladle When the whole paste is finished and the compound acquires the honey-like shape, fill it into the moulds out of the cauldron and cover the mould with a cloth The soap will become solid after 24 hours Take it out of the mould Cut the soap-cakes with the help of a wire or machine It will be worth using for two or four days

2 Fine Soap made with Mustard Oil

Mustard oil=4 seers, coconut oil=½ seer, caustic soda 76 or 77°=one seer water=2 seers, starch=one seer, sulphuric acid=2 tolas

Method of preparation,—Pour the mustard oil into a cauldron or earthen vessel Also add the sulphuric acid into it This oil should be stirred with a ladle successively for half an hour Later on stirring should be stopped and let it keep alone for four hours Keep it aside for four hours Shake it for the third time and keep it aside for four hours In this way 12 hours shall pass away Now the dirt will become separate from the oil The dirt will settle down and the oil will be on the layer of dirt. This decanted oil should

be poured into another vessel. Mix the coconut oil with it Starch should be mixed with the oil Soda caustic has already been dissolved into water acquiring the shape of a paste. It should be poured into the oils and stirred thoroughly with a wooden ladle When the paste finishes and the compound becomes thick like honey, fill it into moulds for solidifying. The next day, it should be taken out of the moulds and the soap-cakes must be cut and sold The soap will be white just like soap, but the goods would be of a high quality

3 Indigenous Soap of Sesamum oil

Caustic soda of 70 or 72 degrees=4 chhataks Water=13 chhataks, Sesamum oil=1 seer, Starch of wheat flour=1½ chhataks.

Method.—This should be prepared like the prescription No 1

Important Note—In preparing the soap of every kind this should be borne in mind that the soda caustic or paste may not fall on the body because there will appear a scar on the skin

4. Matchless indigenous Soap (By cold Process)

Sesamum oil=2 seers, Soda caustic=½ seer, Water=2 seers, Sulphuric acid=1 tola, Powder of soapnut=1 chhatak, Starch =4 chhataks

Method of preparation—First put the acid into the oil and shake it thoroughly After a few hours, the oil should be decanted. The starch should be mixed with this decanted oil The powder of soapnut should be filtered The paste should be prepared before soap making. Mix the paste with the starch-mixed oil Then the whole compound becomes thick like honey Make it solid into the mould Sell them after cutting the soap-cakes This is the best quality of soap

5. Soap making at Home

Soda caustic=5 chhataks, Water=15 chhataks, Mustard oil=1¼ seers, Starch=3 chhataks.

Preparation Method —Dissolve the soda into water to make a paste The next day the starch should be dissolved into oil Stir it into a paste form Then it becomes solid and thick, fill it into the frame to make it solid Cut the soap cakes the next day and use them. This is that soap which can be prepared by women at home

6. Real Amritsari Soap

Sesamum oil=3 seers, Mahuwa oil=1 seer, Starch=1 seer, Water=9 seers, Soda caustic of 70 or 72°=1 seer

Method —Mix the two oils and dissolve the starch in a very good manner so that there may be no piece or clog Now the paste that has been prepared before 24 hours, should be poured into the starch mixed oils in a flush form and stirred with a wooden ladle When it becomes thick like honey, fill it into a mould and cover it with a blanket or sack The next day, it will become solid into the form of soap Take it out of the mould and cut into soap cakes and sell them into the market

7 Superior Amritsari Soap

Mahuwa oil=8 seers, Coconut oil=2 seers, Castor oil=2 seers, Soap stone=4 seers, Starch=12 chhataks, Salt=12 chhataks, Soda paste 25°=12½ seers.

Method of preparation —Pour the soda caustic paste into a big cauldron and put it on the furnace Light the fire into the furnace When the paste becomes hot, mix salt. When it begins to boil, mix all the oils and keep it aside Mix 3 seers of oil into the boiling paste When once it begins to boil, then put the whole soap-stone Stir it with a wooden ladle and make it homogeneous Now mix 3 seers of oils after five or six minutes so that in this way nine seers of oil may be finished Keep the compound boiling After every second or third minute, the compound should be stirred with a spade like iron stirrer so that the compound may not stick to the bottom of the cauldron Keep it boiling for fifteen or twenty minutes and then dissolve 12 chhataks of starch in three seers

of oils and mix it with the boiling compound of soap Keep the fire burning continuously It should be dimly burning If the fire burns brightly, there is every likelihood of falling the boiling compound out of the cauldron, Therefore precaution is essential After fifteen minutes, put the little compound at a clean place If it begins to become solid, stop the fire Pour the compound into the mould with the help of a small utensil On the next day, take it out of the mould and cut the soap-cakes and sell them into the market

8 Another prescription of Amritsari Soap

Mahuwa oil=17 seers, Coconut oil=2 seers, Castor oil=5 seers, Soapstone=10 seers, Salt=3¼ seers, Starch=2 seers, Soda paste 18°=42 seers

Prepare the soap according to the above method

9. Amritsari Soap

Mahuwa oil=14 seers, Coconut oil=4 seers, Castor oil=6 seers, Starch=1¼ seers, Salt=2 seers, Soap-stone=12 seers, Soda caustic paste 25°=26 seers

The above prescription should be prepared according to ths prescription method No 7

10 Cheap Amritsari Soap

Mahuwa oil=30 seers, Castor oil 10 seers, Salt=25 seers, Starch=12 seers, Soap-stone=3 maunds, Soda paste 25°=2½ maunds, Water for starch=1 maund

Preparation Method =It should be prepared according to prescription No 7 The starch should be dissolved into water instead of dissolving into oils

11. Amritsari Soap by a Luckewarm Process

Soda caustic 98°=10 seers, Water for soda caustic=20 seers, Salt=2 seers, Water for salt=40 seers, Mahuwa oil=50 seers, Starch=2 seers, Water=20 seers

Method —Put starch and oil in an iron cauldorn Stir it so that both the things may become homogeneous. Now dissolve thoroughly two seers of salt in 40 seers of water Pour it in a mixture of oil and starch and stir thoroughly When starch and oil is mixed, at the same time put 20 seers of water in a canister and put it on the fire Dissolve 10 seers of soda caustic with it thoroughly Stir it thoroughly so that soda caustic may not stick to the bottom of the canister, The water begins to beil and whole of soda caustic dissolves in water thoroughly. Take it down from the fire The paste of soda should be poured in the mixture of oil, starch and salt and mix it with a ladle. When the whole paste is finished the remaining 20 seers of water should be stirred by mixing with the compound Now the soap will become thick like honey When the whole compound becomes thick like honey put it into the mould When it acquires its solid shape and is quite dry, take it out of the mould and cut the soap-cakes When the soap-cakes, become dry, sell them into the market

12 Amritsari Washerman's Inferior Soap

(*Lukewarm Process*)

Mahuwa oil=one maund, Starch=five seers, Soda caustic =10 seers, Salt=5 seers Water=2½ maunds

Method —Dissolve the starch in oil and make it homogeneous Now pour in this mixture 20 seers of salt water The compound should be heated a little Dissolve 10 seers of soda caustic in 20 seers of water by putting them into a vessel and boil it a little so that soda caustic may be dissolved thoroughly in water Now this paste of soda may be poured into the cauldron and stir it thoroughly with a wooden ladle Now extinguish the fire below the cauldron and stir it 60 seers of water finished by this time and 40 seers of water is remaining

This 40 seers of water should be mixed with the compound and stirred with a ladle. When it becomes homogeneous, pour it into moulds and when solidified, cut the soap-cakes

and sell them into the market This soap is very cheap and fine

13. Amritsari Soap

Mahuwa oil=22 seers, soda caustic paste 35° B=13½ seers, Water=1 maund, 15 seers, Salt=2 seers 4 chhataks, Starch=13 seers

Method of preparation—Oil and water should be poured into the cauldron and mix five seers of paste and stir it thoroughly Put it aside for the whole night The next day morning, light the fire below the cauldron When the compound is about to attain its proper shape, mix slowly 8½ seers of remaining soda paste The compound is ready and the paste of soda is exhausted. The solution of salt and starch be filtered through a sieve Pour it into the compound and stir When the compound is thick, it should be filled into the frame and solidified The next day it should be cut into the shape of soap cakes and be sold into the market

14 Cheap Amritsari Soap

Mahuwa oil=12 seers, Coconut oil=3 seers, Castor oil=1 seer, Soda caustic paste 35°=8 seers Starch=10 seers, Salt=½seer, Water for salt=13 seers

Preparation Method—Mix the oil with each other and dissolve starch in them and make them homogeneous with the help of a wooden ladle, so that there may be no clog Dissolve the salt into the water in a very good manner Soda caustic should be mixed with the paste Pour this saltish water paste into the oil and stir the compound into a very good manner Fill it into the frame Take it out of the frame the next day The soap-cakes should be cut, when dry, cut the soap-cakes and sell them into the market

15 Prescription of Matchless Amritsari Soap

(By the Boiling process with Sesamum oil)

Pour one seer of sesamum oil into a cauldron, Mix one seer of paste 10° BUMI and stir it thoroughly with a wooden

ladle and keep it aside for 24 hours. It will become somewhat solid after 24 hours Now light the fire below the cauldron When it begins to boil, then 25° paste of BUMI should be put 30 seers, after each 15 minutes 5 seers each time and stir it with a wooden ladle i e, the whole paste should be finished in six times. Stir the compound thoroughly. There is no need of stirring it continuously Stir it for five minutes and take rest for 10 minutes. As soon as the compound is cooked, its colour will become somewhat almond-like. When cooked, the soap will decompose just like curd, i e., the paste and soap will become separate At this time, the fire should be stopped and put aside for 3 hours.

Later on, water should be pumped out with the help of a syphon pipe The compound should be filled into the mould for solidifying

16 Multani Washing Soap

Soda caustic paste 36°=5 seers, Mahuwa oil=2½ seers, Coconut oil=1¼ seers, Sesamum oil=1¼ seers, Salt=1 seer, Water for dissolving salt=9 seers, Soda silicate=1 seer, Warm water for silicate=1 seer, Starch=1¼ seers

Note—The mixing of starch is legally banned therefore gluten should be used in its place It is considerably cheap **Method of preparation**—All the oils should be mixed and heated a little so that they may become soft There is no need of heating the oils in the summer season, when the oils remain in a liquid form In the mixed compound of oils starch should be added and stirred so that there may not be any clog The salt may be dissolved separately into the water When the water dissolves thoroughly into the water, mix it with the paste of soda caustic Now soda silicate should be dissolved into hot water in a separate vessel After this, pour the salt mixed paste into the oils and stir When it begins to become hard, soda silicate that is thinned with water should be added to it and stirred in order to make it homogeneous Fill it into the glazed cups When it becomes hard it can be used and sold Better and cheap soap will be made

17. Multani Soap

Mahuwa oil=2 maunds, Sesamum oil=20 seers, Starch=25 seers, Soda caustic paste 36° B=1 maund 10 seers

Method of preparation.—The starch is dissolved in oils and kept aside for the day. Stir it with a wooden ladle the next day Mix the paste for one day. When it thickens, fill it into glazed cups or frame for solidifying Take it out of cups, it can be sold in the market If you have moulded it into a frame, it should be sold after cutting the soap-cakes. It is a very fine soap. It is sold like hot cakes.

Hidden Secret of Soap-Making

In the new light of science if we grope into the dark, it is our fault The science is giving a warning and clarion call to everybody that everything is ever-changing. There should be a change in your life also Everything that you have already studied about soap making that was this We are following in our forefather's footsteps We are imitating the same thing that our forefathers did The people who were interested in the field of science, began to make experiments They got much by these experiments. If you spend a little money and a little time there is no power on the surface of the earth that can check you from becoming a millionaire. But the exception proves the rule that you should not be afraid of leaving the beaten track and walk on the new scientific lines that are found out by scientists.

What experiment have been conducted,—The oil is the soul of the soap It is the dearest thing of all the other constituents of soap Its rate ranges from Rs 40 to Rs, 60 per maund, The scientists have found out the substitute for the thing that costs Rs. 60 There is a thing that you can buy in Rs. 12 per maund. This is equivalent to the work of the thing of Rs. 60 per maund

What is the substitute?—You are well-acquainted with this that there are innumerable factories of Vanaspati Ghee in India The factories that are preparing the Vanaspati Ghee, purify the Vanaspati from impurities and these impurities are thrown into tanks These impurities acquire the solid shape of their own accord like a block You might have seen

the pieces of paraffin wax, the impurities acquire the shape of paraffin wax in flat pieces You can buy these from all the companies that are producing vanaspati ghee It can be had cheapest from the Madras. Vanaspati Producing Company This company is s tuated in Madras At this time, this company is selling the vanaspati impurities at the rate of Rs 12 per maund These impurities are filled into sacks for selling purposes.

How these impurities are used ?—Take an iron cauldron and put the impurities into it according to your own choice When these melt and acquire the shape of indigo, filter it and pour 5° soda caustic paste according to the quantity required and as a constituent, the addition of soda silicate is also essential When this soap is ready, fill it into tanks

When is this soap cut ?—The soap that was filled at night, would become solid in the morning Take it out of the tank and cut its soap cakes If you failed to cut the soap the same morning, it will become solid like a stone and will not be cut in any case This will become useless

When does this soap become worth using ?—After cutting the soapcakes, put the soap exposed to air Then you can send it from one place to another after filling into sacks.

Important instructions for Vanaspati soap The impurities of vanaspati ghee contain some such stones that are hard like stone and it contains a great quantity of impurities Such impurities are cut with some pointed instrument into small pieces Cook it into the cauldron There would be no grain like spot on the soap It is an essential thing It should be borne in mind According to the views of the writer, the above mentioned few lines have the capacity of a key of the treasure-house of Goddess Lakshmi If you will open this treasure-house by the key of labour, you will roll in riches Otherwise this valuable secret will become a rubbish paper

Alexander the Great, crossed the river Jehlum. One of his Generals said to him. "Had you an opportunity of advancing, then what is your forward step ? Would you advance or not ? '

Alexander, the Great replied that the opportunities were not had but created by the brave men Advancing or retreating is a matter of life and death for them The people who made up their mind to do a thing, succeeded in their aim If you will do this work with a determination and interest, you must succeed.

Which is Profitable Industry?

Many of the readers who have studied first edition of latest Cottage Industry and first and second edition of New Small Industry have questioned by posting letters that which is the most profitable industry out of all the industries that are explained in these books Their question shows that they either not started any of the Cottage Industries or, if started, they are not fully acquainted with it Therefore the noblemen who are interested with the cottage industry business but are ignorant about it, we are putting a flood of light on this question for their sake The answer of this question will be much beneficial for the readers and their doubts would be cleared Now the question is which is the profitable business Now if we put the cross-question upon the readers what business is not profitable It is possible that readers won't be able to give the answer of this cross-question Therefore we do not think it better than giving the answer of the question All the business that are being started and done thoroughly by big and small concerns are profitable Now we shall prove it how these businesses are profitable It would be better if any one asks the question face to face and we shall give him the direct answer by a word of mouth and prove before him the utility and profitability of every question Well, now we put one industry before you for giving you full information Take for instance the industry of candle-making Suppose for a moment that this industry is not profitable Think over the following things serially keeping in view your own supposition and you will reach at the real conclusion

(1) If there is no profit, then why the big and small companies are doing it (2) If there is no profit why these goods are placed on the shops for sale (3) Is this industry started in the near future or it is being done by the business-

men from years on end (4) In reality, are these goods sold worth lakhs of rupees every year ? (5) Are many people in need of these goods ? (6) Are these goods made throughout the length and breadth of India You will have to give the answer of the above six questions in the affirmative All the big and small companies are doing this business because it is profitable Every shopkeeper sells these goods for the sake of profit No doubt, this business is being done from years on end and is done with a view to earn profit No doubt, the candles are being sold worth crores of rupees every year No doubt, where there is no electricity or the people want to start a business with small investment, they start this business It is quite clear that the candles are made and sold throughout India It is clear from the above-given answers that every business is profitable Some business is more profitable and some business is less profitable The profit depends upon the intelligence of the doer If the doer does his work very intelligently, the increase and the decrease of profit are in his own hands Start any business without any hesitation which you want to start At the time of starting any new Industry, there should be one question in your mind—"If there is no profit, why the businessmen are doing this business" This will remove all your doubts and the obstacles that stand in your way of progress will be put aside and you will make progress by leaps and bounds You will lead a life of prosperity by earning wealth

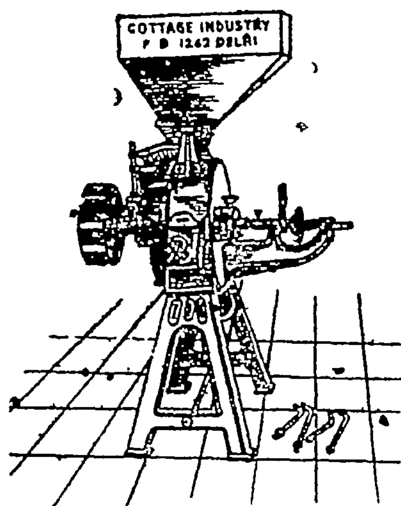
One thing has great significance in business (1) The machinery of the industry you want to start should be bought from the original manufacturing company that can give you full information and training at the time of need (2) Raw material should also be bought from that company (3) Your workers should be clever and intelligent and trained. (4) The production of goods should be reasonable There should be proper arrangement for the sale of the goods (we shall write in detail further) If these things are done properly you must get a profit in your business

Flour Mill Industry

Three or four kinds of flour Mills are used for grinding the grains. One are those that are driven by the hand (2) The second is driven by the aid of water or by a couple of oxen (3) The third is driven by the aid of electricity Seemingly it is an ordinary business and everybody knows that it is a Flour Mill but the business determines its usefulness from a business point of view and they made experience over it and reached at a conclusion If a small capital may be invested, the electrically driven flour mill can be started. You can earn Rs 250 or Rs. 300 monthly by the aid of this industry. This industry requires four things (1) Place (2) Electric Connection (3) Electric Motor (4) Flour Mill The first two things are not difficult to get Shops and houses can be got in every small and big city You will have to apply to the Electric Department for electric connection There is no difficulty in getting the electric connection If you want to start your work at such a place where there is no electricity, you can take work from the oil engine or crude oil engine Five or six horse power motor is required to drive the Flour Mill. This motor you can buy from every big or small city The detail of the flour mill is given below You can get much profit by setting up a flour mill The flour mill can be had from *The Cottage Industry (K-8) P. B. No. 1262, Anguri Bagh, New Market, Delhi-6.*

Flour Mill

THIS FLOUR MILL is manufactured on the most modern principles, with best available material backed by skilled and experienced workmanship The machine has dust proof Ball Bearings and incorporates a device to regulate fineness of grinding.



The case and legs are of best quality Cast Iron, Wooden hopper of reasonable size and provided with a pair of best quality Emery Stones—the runner stone rotates with the shaft and the fixed stone is attached to the casing towards the pulley side. A safety spring protects these stones from any Nails etc. hard substances entering between the discs.

The machine is suitable for grinding any kind of grains or any other dry products

Dimensions etc	English	Metric
Diameter of stone .	16"	407 m m
Pulley size	12"×3½"×1.37/64"	305×90×40 m m
Height (overall) ..	4"—10"	1475 m m
Length (do)	3"—3"	990 m m
Width (do) .	2"—5"	736 m.m
Net Weight .	Lbs 452	205 kg.
Gross weight(packed)	Lbs 590	267 kg
Volume, packed	C Ft 24½	0 7 cu m.
H P required .	6 to 7	5/6 kw.
Revolutions per minute	650	650
Output per hour (apprex)	Lbs 500/600	226/272 kg.
Price Rs. 525=0		

The experience of our Customer wh bought Flour Mill from us -"We decided to set up a flour mill, because if fulfils one of essential and daily needs, and then, after all, it's the modern thing Moreover no one likes to eat the flour that is ground by the age-old grinding stone which is driven by a couple of oxen. I particularly looked forward to start the flour mill industry because its work is so clean that every body would like to eat the flour prepared by this mill

I've bought the flour mill from the workshop of Cottage Industry and I love this business. I got the training and full information about its working from the management of Cottage Industry. But what came to me as a complete surprise was how fine mechan cal work is done in the manu facture of the machine It ground a huge heap of grains within few minutes. I had not expected such speed. Its parts did not get hot after whole day's work.

I do appreciate its grinding wheels because it grinds the flour finely I have set up the machine into my shop on one side and an oil extracting machine on other side. Both are run with the aid of one electric motor.

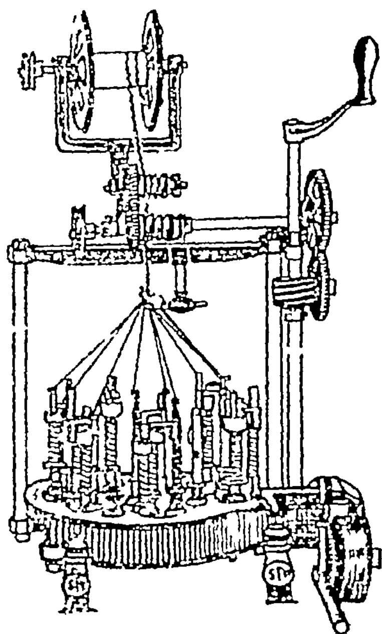
I didn't take long to get training from the manager of the Cottage Industry. With those smooth control regulators you get any variation of speed you want, and you can keep the speed fast or slow according to your own sweet will

One man is required—Only one man is engaged, so he can put the grain into the container The grain goes between the grinding stones and is finely ground into flour We sw[illegible] on the electric button when we want to grind the gr[illegible] then it is swiched off, when the grinding is finished."

Write a letter to the manager of Cottage Ind[illegible] order for a new flour Mill All the machines [illegible] approved and there is a good selection for y[illegible] also learn about the new, very easy, terms.

Braiding Industry

The fashion is increasing according to the demand of the time The man is a hnman being Human nature always wants a change He desires to achieve novelties of every kind The beautiful woman wants to adorn her with shining ornaments Many things are adorned with ornaments The girls beaming with youth are fond of beautiful clothes They are in search of beautiful varieties of cloth and what new design may be trimmed or braided on them so that it may add to their beauty You might have seen that the saries, blouses or shirts are laced or bordered These laces are variegated One lace is made of many colours These laces are of superior and inferior qualities It is made of many kinds of yarn It may be silken if it is made of silken yarn It may be cotton if it is made of cotton yarn. It is sold worth lakhs of rupees Apparently this industry is very small, but the factories which manufacture such laces are giving employment to many persons The goods worth lakhs of rupees are being manufactured and sold The dealers in this industry are earning much profit by this business The lace that is used in ties and boots is made by the manufacturers of this industry



Of what thing these laces and trimming is made of —There are many factories of yarn spinning These companies prepare the finest qualities of thread. These threads are coloured in various colours Reels of five or ten pounds are made and sold in the bazar You can buy such yarn from the big yarn-sellers or direct from the companies

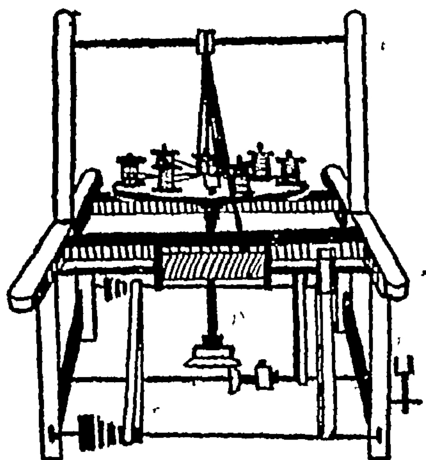
With what machine these laces are made and what is the name of that machine —These goods are made with the help of the braiding machine This is of many kinds The goods making capacity of the machine depends upon the number of the spindles The price of machine is like this.

The price of 12 spindle machine is Rs 190
The price of 13 spindle Machine is Rs 225
The price of 16 spindle machine is Rs 285
The price of 24 spindle machine is Rs 350
The price of 32 spindle machine is Rs 400

These machines can be operated by the hand. If you want to drive this machine by the aid of electric motor, you should fix a pulley for the revolution of the machine It is a very cheap industry. Even an ordinary person can manufacture goods by the aid of this machine This work can be done by the aid of a little capital These machines can be had from the Cottage Industry, (K-8) P B 1262, New Market, Angoori Bagh Delhi.

Aerial Wire-making Machine

The people who has installed radio in their house, i. e., the people who are connected with this industry They can understand the meaning of the word aerial Aerial is that wire that is adjusted at the roof of the house and connected to the wire of the radio This industry is on the increase now-a-days This wire can be adjusted very easily 7/18 size of seven copper wires are twisted into one wire Then this wire is insulated with the insulating material The price of the aerial wire-making machine is Rs 650.



Colouring Machine —The aerial wire seems to be coloured in black colour This wire is coloured by the aid of colouring machine The price of this machine is Rs 250

Die for marble Tiles —These dies are very useful for the people who make marble tiles The size of these dies are different You can get your size made according to your own choice

The price of 8×18 iron frame die is Rs 300

The price of 10×10 iron frame die is Rs 350

The price of 12×12 iron frame die is Rs 450

Baby boiler —Capacity $3\frac{3}{4}$ to $4\frac{3}{4}$ gallons Does not come under the Indian Boilers Act, useful for oil mills. Rubber mills, Laundry Soap Works, chemicals, Cable Manufacturing Factories, Biscuit Factories, Hospital, Rice Mills, Small Sugar Mills and various other cottage industries Price Rs. 500

Salesmanship

In modern times, new sources are found out for selling the goods As far as we cannot arrange fully for the sale of the goods, the success of the industry is impossible The people who make proper arrangement for the sale of goods are progressing by leaps and bounds.

The following instructions should be borne in mind for increasing the sale of goods —

(1) To advertise the goods in newspapers and pamphlets (2) To distribute the sign-boards on which the name, address and full detail is given. The sign-boards should be hung at the place where every one would be able to read it. (3) The agents should be sent to other cities for booking the order (4) Sole agents must be appointed in other cities (5) Calenders on which the name and address of the firm is printed, are distributed among the public (6) The contents of the goods should be sent in printed form to the dealers (7)Your dealings with your customers should be polite and courteous (8) Your treatment towards your employees should be kind and generous

If you will keep the above-mentioned instructions in view, you would be successful in your business.

The people who live upon cottage industry should read the following essay very carefully.

The essential thing in Cottage Industry is how to sell the goods There is a wise saying that runs like this, that even women can manufacture the goods but their selling is very difficult Therefore we shall make you understand in a very good manner. If you understand the secret of selling in a proper manner, then take it for granted that you would be crowned with success in every field of business

The manufactured products should be neat and clean. The packing of the goods should be as beautiful as anything The weight should be the same as is printed on the package The label of the package should be according to the modern standard The new label may be designed according to the new and beautiful labels prevalent in the market. The price of the goods should be determined by the price of the market, i e, the price of the goods may be neither above nor below the market rate of the same goods You should try your level best that your rate should be a little lower than the market rate

If your goods are better and the price is below the market price, they will automatically attract the buyers. Your goods will be sold much and in a very short time You will be appreciated by the customers If you will do adversely, then you should bear in mind that the tables will be turned One thing more that is worth remembering is that honesty is the best policy Be honest in your dealings with your customers The quality of things may not be inferior for the sake of making more profit The weight of the goods should be exact. The printing of the label should not be bad If you will show dishonesty, your business would be ruined and you will have to bear a heavy loss The dishonesty will undermine the roots of your business You cannot befool all the people all the time You should try your best that the goods may be of high and good quality The price may be kept below the market price Your step should be forward in very sphere of life

Now we are telling you the first and foremost thing that is very useful for you The Cottage Industry manufacturer tries to search a shopkeeper who may buy their products as soon as possible

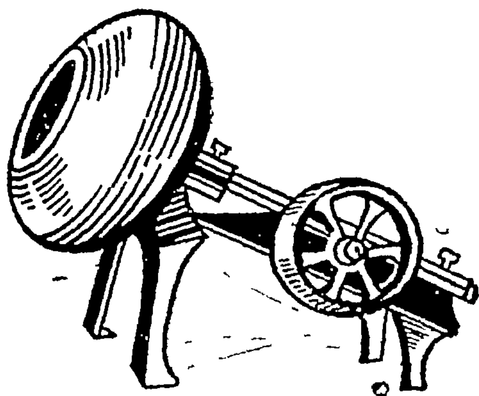
The manufacturers want to sell their goods in the evening that are prepared in the morning. This work is very dreadful If the shopkeeper who buys your goods gets the goods at a cheaper price from another dealer, he will stop to buy goods from you Your goods will remain unsold, i e, by doing so you will have to undergo a heavy loss

We are about to tell the way out of it. You should see to it that your goods are being sold in the hands of small shopkeepers If a petty shopkeeper buys only one packet from you, you should be glad to supply him one packet only You should give your goods to small shopkeepers instead of big shopkeepers You should bear in mind that your goods may be available at every shop of the city The benefit of this would be that you should not be a slave to any shopkeeper. You will be popular among many shopkeepers. The goods will be spread in the whole city If your goods are of high quality then it is essential that you would again receive the orders from the shopkeepers It is possible that you will be acquainted with such shopkeepers who demand a lot of goods. This is the golden rule of success in business No doubt, you will be troubled at first when you will have to face hardships

Now compare your hardships with the hardships of a farmer. If the farmer sows all the seeds on one place, how much would be the production of his field Now you see that the Cottage Industry manufacturer is aways in search of a shopkeeper who would be able to buy his whole production. This is a great blunder from a business point of view The Cottage Industry manufacturer should intend to sell his goods at retail shops and not to wholesalers His production would go into many hands If you will try to understand it thoroughly, you will succeed in these businesses

Sugar Coating Industry

This industry has a great significance in the field of business The work that is done by this industry seems to be very small In reality, these things are sold worth lakhs of rupees The people who start this industry earn a lot of money The meaning of coating is to put a layer of paint or material for coats The coating makes no difference in the reality of the thing coated but its virtue and peculiarity increases. You might have visited the shop of a doctor and you might have seen that the doctor keeps two kinds of quinine One is bitter while the other is sweet Some people do not like to eat a pill of bitter quinine Therefore the quinine-making companies put the coating of sugar on the bitter pills of quinine, i e, they cover the quinine pills with a layer of sugar



so that the patients may not taste the bitterness of quinine In the same way, you might have seen that a thick layer of sugar is coated on aniseed, kernels of almond and pistachio etc These are sold with the name of sweetened kernels of almonds, sweetened pistachio, sweetened aniseed etc The sweetmeat making companies are selling these sweetened things after packing them in tin boxes They are earning thousands of rupees monthly The first and foremost thing in this industry is the red pill that is eaten with the betal. Thousand maunds of red pills are made and sold every day

How is sugar coating put ?—You want to coat a thing with a layer of sugar First prepare a compound of sugar When the compound of sugar is ready, put it in a kettle whose lower surface has a thin hole Put in the pan of sugar coating machine the thing you want to sugar-coat Now fit the kettle on a stand over the sugar-coating machine The position of the kettle should be such that the sugar compound may flow out of the hole of the kettle in the sugar-coating machine Now start the sugar-coating machine The machine will be operated from below and the sugar compound shall flow into it out of the hole of the kettle. The thing that is put in the pan of the sugar-coating machine will catch the layer of sugar The thickness of the sugar-coating layer should be according to your own choice When the first thing is coated, take it out of the pan of the machine and put the next thing that you want to coat You can add scent and colour according to your own choice

Take wheat flour and wet your hands with water and rub this wheat flour with palms of your hands so that flour may acquire the shape of barley seeds Now separate the barley grains with the help of a sieve and put it into the sugar-coating machine Now put the sugar compound in the big kettle and put it on the stand. Below this stand sugar coating machine is operated After a short while, the sugar will be coated on the pills To give them colour depends upon your own choice The colour of the pill will be the same as you will add into the sugar compound There are many sizes of the sugar-coating machines The price of the 1" size machine is about Rs 250. The price of the 1½" size machine is Rs 375. The price of the 2" size machine is Rs 475 These utensils are made of copper. They are sealed with tin from inside so that the thing may not get bad All these machines can be had from the Cottage Industry, New Market, Anguri Bagh, P B No 1262, Delhi The figure of the machine you have already seen on the previous page

Solder Wire-making Industry

The people who know how to assemble the radio understand the meaning of solder wire The zinc wire is called the solder wire With the aid of this zinc wire the wires of radio are soldered with the aid of this zinc wire This wire is made of zinc and can be sold worth thousand of rupees The manufacturer gets much profit by starting this Industry The method of making is very simple It can be moulded in the moulding machine meant for this purpose You should take it for granted that you are not moulding the sticks of zinc but you are making candles Take $\frac{1}{16}$ inch diameter rod of iron and blacken in with the smoke of a candle Now adjust this iron rod in the centre of the zinc moulding mould Pour the zinc in the mould after heating. After a little while the zinc will acquire shape of a candle Now take it out of the mould Take the iron rod out of zinc candle This rod was adjusted at the time of moulding,

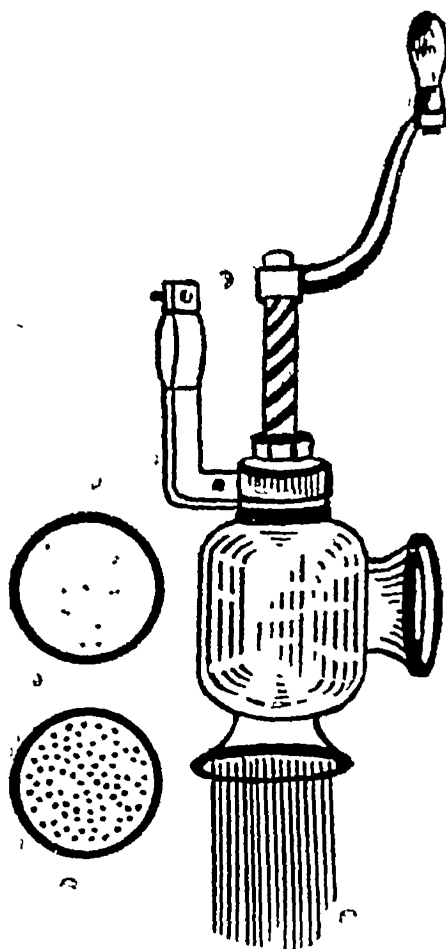
Note We coat the iron rod with candle smoke so that it may not stick to the zinc when the zinc becomes cold If you adjust the zinc rod without coating it with the candle smoke, it will stick to the zinc and will not come out Therefore it is essential that the iron rod may be coated with smoke before adjusting it into the zinc candle making mould. Now put powered dry rozen in the holes of these zinc sticks Close the hole from upper and lower side Now this zinc stick may be fixed into the rollers of the machine It will become thinner and thinner. When it becomes thin in the wire making machine, you can sell it into the market after packing into the boxes The size of the solder wire should be according to the size of the market

The price of the zinc-moulding mould is Rs 80

The price of the roller machine in which the wire is thinned upto $\frac{1}{4}'$ is Rs 1200 The price of the wire making machine is Rs 1100.

Industry of Vermicelli

In our country, every religious party celebrates its festival in its own way. The foods that are prepared at the time of these festivals are very wonderful Vermicelli, is also a very delicious food. The people who are accustomed to eat vermicalli, do cook (*saviyan*) for their food at the time of festivals This industry seems to be very small but at the day of Idd, vermicelli (*saviyan*) are prepared and sold worth

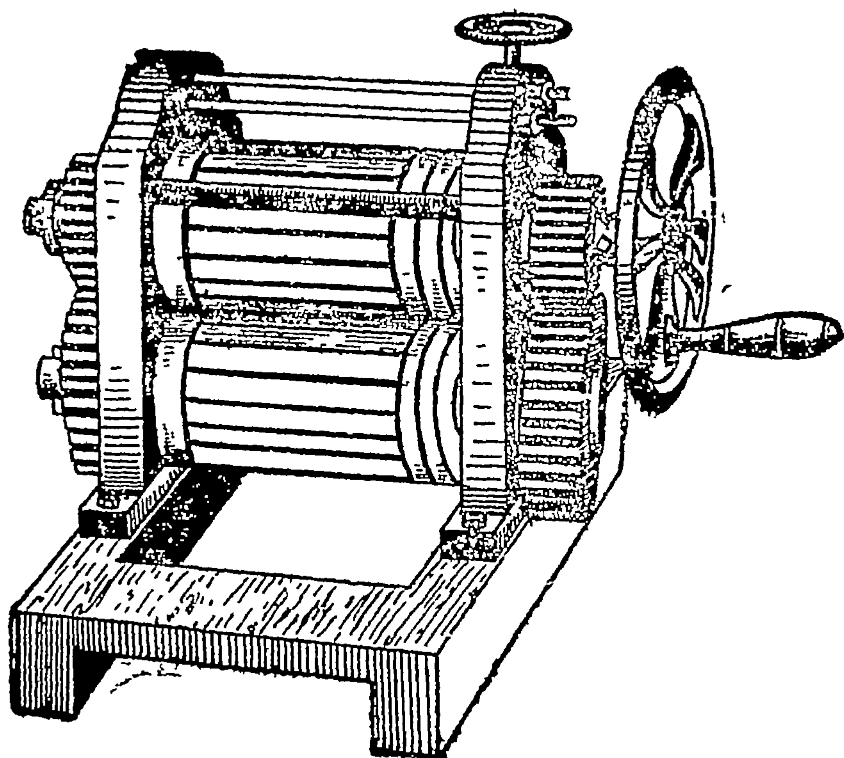


lakhs of rupees Now you will yourself estimate that people who are making and selling these vermicelli (*saviyan*), how much profit they have earned There is no such industry in which a man does not earn.

Of what material and how these vermicelli are made —The vermicelli are of two kinds One of them are prepared from wheat flour and the other are prepared from starch The flour is put aside for three or four hours after kneading it Then it is again kneaded so that it may become elastic like rubber After that the machine is fitted upside down on the table The machine is lubricated with some oil or ghee so that the flour may not stick to it Now put the kneaded piece into the machine and revolve the handle of the machine from upper side The vermicelli will suspend at the mouth of the sieve The vermicelli are spread on mats so that they may become dry When dry, they are put in big baskets, and put into use These are very light in weight and occupy much space The vermicelli-making machine is of two kinds One is big and the other is small There are two sieves with every machine One big and the other is small The price of the small machine is about Rs 15 and the price of the big machine is Rs 25

Industry of Crushing sugarcanes

In the summer season, the juice of sugarcanes is sold in large quantities in big cities The principal cause of its sale is that the product of sugarcane in India is very great and it is sold in India very cheap One sugarcane costs hardly 3 nP. If we crush one sugarcane it can give a glassful of juice One glass is sold in about 2 annas or 2½ annas There is no probability of huge profit in this industry But the people who want to invest Rs 100 or Rs 200, can earn their livelihood with the aid of this Industry It is a profitable busi-



ness Because if we fit a sugarcane crushing machine on a trolley like vehicle, we can earn Rs 4 or Rs 5 daily with an

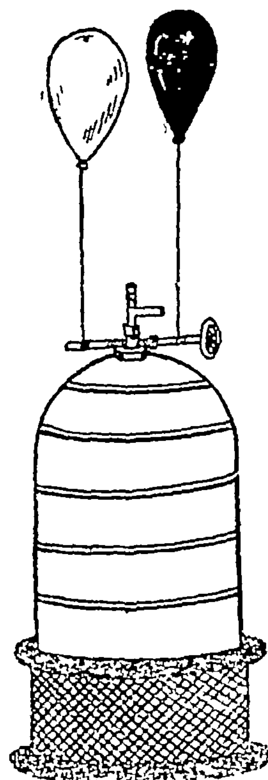
investment of Rs 3 on sugarcane There are such big cities as Madras Presidency where we feel hot in winter season even At such places, the juice crushed out of the sugarcane is sold throughout the year The sugarcane crushing machines are of two types *i e* A type machine and B type machine The price of A type machine is Rs 375 and the price of B type machine is Rs 280 These machines can be had from the Cottage Industry P B No 1262, New Market, Anguri Bagh, Delhi

Some people are operating these machines by the aid of oil Engine Because in some cities we cannot meet the growing demand of sugarcane juice, if the machine be operated by the hand Now you can imagine how much juice can be extracted by the aid of Engine and how much profit can be reaped by this industry No doubt, there is no such industry that cannot give profit at the proper time and proper place One horsepower or $1\frac{1}{4}$ horsepower Engine is sufficient for crushing the sugarcane The price of it is Rs 375 These can also be had from the workshop of Cottage Industry The picture of the machine is the same as you have already seen The sizes of the machine are different

Industry of Gas Filling in Rubber Balloons

There is such a part of society who get no work Moreover they have no capital so that they may be able to start some business. Such people face many difficulties They think about such business that can be started with Rs 100 or Rs 150 The Industry of gas filling in Rubber Balloons is a God-given boon for them This Industry can be started with Rs 60 or Rs 70 If this industry is done diligently, you can earn Rs 2 or Rs 3 very easily Three things are required for this industry No (1) Gas Filling Machine (2) Rubber Balloons (3) Iron Powder, (4) Sulphuric Acid The method of Gas-making is given below —

Take 6 chhataks of Iron power and put it into the gas filling machine Now put 4 chhataks of sulphuric acid into the machine and also put a little water into it. Tightly fit the nut of the machine Within a minute the gas will be ready. Now you can fill gas into rubber balloons throughout the day and take advantage of it



When the gas is exhausted, you can again prepare the gas by the same method The price of this machine is Rs. 65 Packing and forwarding charges are Rs 10 You can buy this machine from :—

Cottage Industry, (K-8) P B No 1262, New Market, Anguri Bagh, Delhi-6

You can fill gas in thousands of Rubber Balloons within a day Rubber Balloons can be had from every big or small city Price of one gross of Rubber Balloons is Rs. 2 or Rs $2\frac{1}{2}$. The iron powder can be had from the turner's machine workshop without any cost

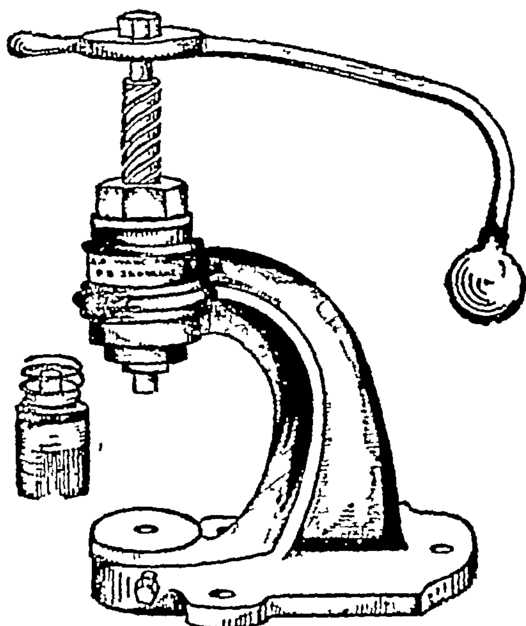
Balloon is a round or pear-shaped airtight envelop inflated with gas lighter than air and rising skywards These rubber balloons are a brilliant present for small children They provide them endless pleasure and knowledge In the olden times, the Lever Brothers flew like a bird into the air with the aid of a balloon Unfortunately the balloon burst and Lever fell down and died After some days his brother did the same experiment but he was crowned with a success.

Further Information

According to past traditions, whenever you asked any question, you had to send a money order of Rs 5 We estimated from our past experience that we should leave the past traditions Because the questioner is sitting on a distance of two or three thousand miles When he sends a money order of Rs 5, he thinks that he has sent a lot of money This you know full well that the population of Delhi is spreading in the area of about 30 miles The questioner was from Madras side who asked the question of such a thing that was to be got from a factory in Faridabad Faridabad is 17 miles away from Delhi We had to send a man continuously for three days On the first day when our man reached there, the manager of the factory was not present in the factory. On the second day, when the man was sent, the head clerk was on leave On the third day, the satisfactory answer was received That answer was sent to the businessman Now you yourself estimate that the distance covered in one trip was 34 miles and the distance covered in three trips is 102 miles and three days' labour of the worker wasted and after that 4 pages letter was typed. Stamps worth 15 n p were affixed Now you should estimate that we got Rs 5 and spent about Rs 15 or Rs 20 on it We have not started this business for the sake of profit We do such things out of sympathy with our customers who are living thousand of miles away from Delhi and there would be no harm of them The gentlemen who will send reasonable money for getting the answer of their questions, their answer will be sent by all means But those who will sent Rs 5 according to the old tradition, we would be unable to satisfy them by sending their answer There are some such letters that contain each about 20 questions, this is also worthless When you get the answer of one question, then you should try to send the next question Some gentlemen complain of delay We do not show delay intentionally There are many such incidents that cause delay in doing the work When you ask any question, you should wait for its answer for about 10 or 12 days It is impossible to get the answer before this time PUBLISHER

Button Covering Industry

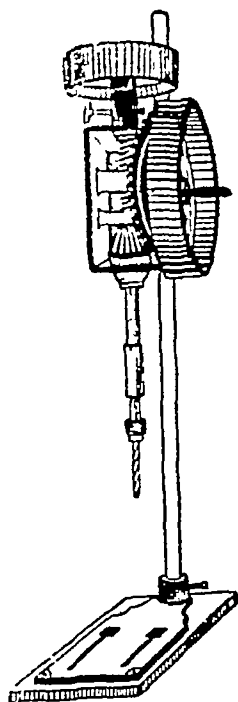
It is seen in big cities that the shopkeepers who deals in buttons keep button-covering machines The tailors or other people bring the cloth according to their own choice They get the tin button covered with a beautiful cloth and make them to match their suit. These buttons are fixed on the pents, shirts, blouze and on combinations for the children Apparently they look very beautiful. The buttons add to the beauty of the cloth on which they are stitched. The covering charges of a button is 2 or 3 pice. Many buttons can be covered within a day. The people who have this machine in their possession earn a lot of money. This machine is of two kinds No (1) A Type, No (2) B Type There are two dies with each medicine One is small and other is big The price of A Type machine is Rs 76 and the price of the B Type machine is Rs 65.



Advertisement

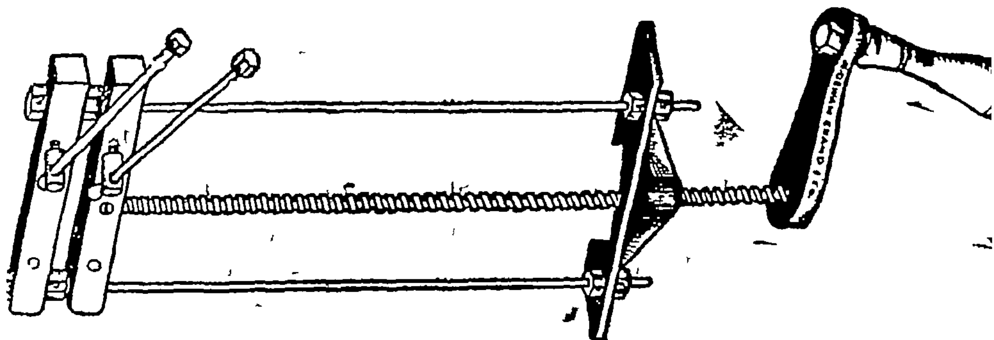
Are you in need of the following machines

1. Drilling Machine This drilling machine can be driven by the hand Its speed is 10 inch. It can bore a hole of $\frac{1}{10}$ inch to 1 inch diameter. You can bore a hole of 10 inch depth It is very useful for the villagers who have no electric power in their possession It runs very light It is durable It is very useful for the manufacturers who have set up a small workshop Such hand operated machines are very rarely available in the market The price of this machine is Rs 400



Iron Wires or Iron Belting

A machine for adjusting iron wires or iron belting on packets —This machine is very useful for those firms who daily send packets to other cities After fitting the iron belting on the packets, it is guaranteed that it will reach the destination without any harm to the goods packed The price of this machine is Rs 60 It is made of pure steel. You can see its shape into the diagrams The above mentioned machine, you can



get from us: A Dewan Chand Anand and Son, Post Box No 1262, (K-8), near Red Fort, behind Recruiting Office Delhi 6